

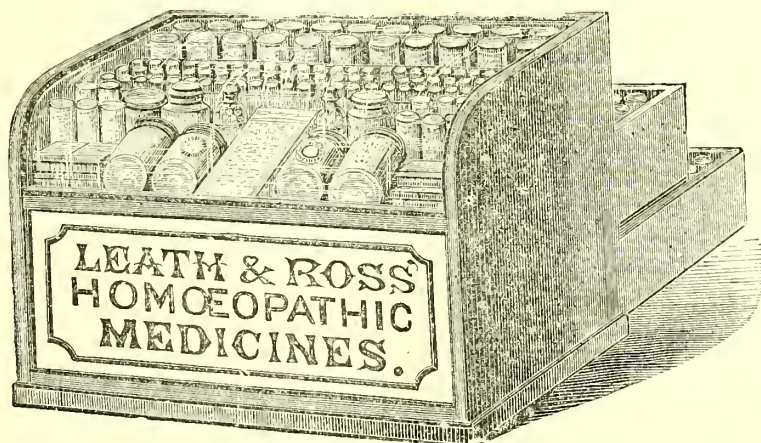
# LEATH & ROSS'S HOMŒOPATHIC PHARMACIES

9 VERE STREET, W.,  
And 5 ST. PAUL'S CHURCHYARD, E.C., LONDON.

OUR £10 10s. AGENTS' SHOW CASE.

Contents realise £17 17s. 8d.

DIMENSIONS.—Length, 18 in.;  
Breadth, 13 in.; Height, 13 in.



DESCRIPTION.—A Handsome Bent Glass Case, with three drawers, the contents of top drawer visible, the Pilules and Tinctures arranged in the other two in alphabetical order.

## WHOLESALE PRICE LIST OF MEDICINES PUT UP READY FOR SALE.

### GLOBULES or PILULES—

Sixpenny Tubes	...	...	2/9 per dozen.
Ninepenny „	...	...	4/3 „
Shilling „	...	...	5/- „

### TINCTURES or TRITURATIONS—

Sixpenny Bottles	...	...	2/9 per dozen.
Ninepenny „	...	...	4/3 „
Shilling „	...	...	5/- „

### PROPRIETARY ARTICLES.

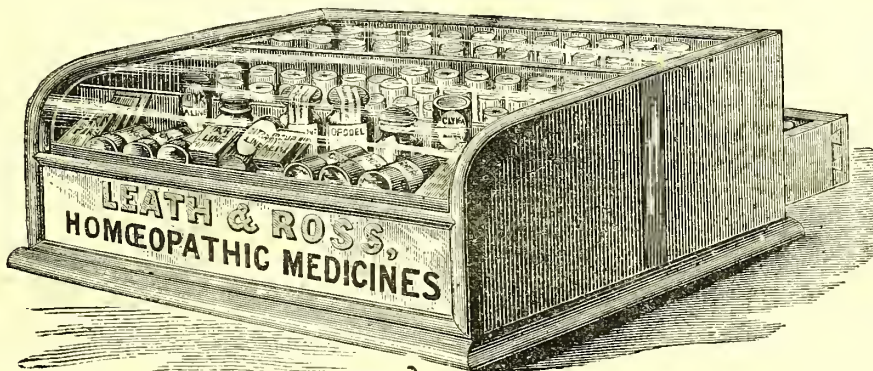
Neuraline	...	...	1/1½	Berberine	...	...	1/1½	Linimentum Auricularis	...	1/1½
Glykaline	...	...	1/1½	Chilblain Liniment	...	...	1/1½	Bryonia Liniment	...	1/1½
Phospho-muriate of Quinine	1/1½			Odontagie Essence	...	...	1/1½	Corn Eradicator	...	1/1½

All the above Proprietary Articles, 9/6 per dozen.

OUR £6 6s. AGENTS' SHOW CASE.

Contents realise £10 18s. 3d.

DIMENSIONS.—Length, 20 in.;  
Breadth, 15½ in.; Height, 9½ in.



DESCRIPTION.—A Handsome Bent Glass Case, with two drawers, the contents of top drawer visible, the Pilules and Tinctures arranged in alphabetical order.



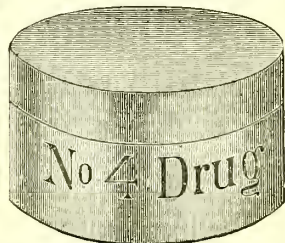
# ESTES' AMERICAN DRUGGISTS' & CHEMISTS' TURNED WOODEN BOXES.

PILL, POWDER, AND SALVE BOXES.  
FINELY-FINISHED FACE AND TOOTH POWDER BOXES  
BOXES FOR SENDING VIALS BY PARCEL POST.

## Boxes for Proprietary Articles.

ESTES' GREASE-PROOF TURNED WOODEN BOXES

BOXES OF EVERY STYLE & FINISH  
MADE TO ORDER.



*Boxes equal to English Manu-  
facture at lower prices.*

**USE WOODEN BOXES**

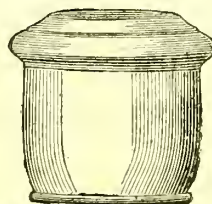
In place of Paper or Tin.



SOLE AGENTS FOR  
GREAT BRITAIN.

**KILNER BROS., KING'S CROSS, LONDON, N.**

ESTABLISHED 1855.



## J. ROGERS & CO., MEDICAL BOX TURNERS,

1, 2, 3, & 47 CARTER STREET, WALWORTH, LONDON,

Turners of every description of Tooth Powder, Plate Powder, Pill and Puff Boxes, used by Chemists, Perfumers, &c.  
All Boxes of our make are finely finished. Patentees and Manufacturers of the

## SILICATED GREASE PROOF BOXES

These Boxes are turned out of Willow and Silicated inside, rendering them quite grease proof, and will be found very convenient to send by Post. They are very light, being one-sixth the weight of covered pots. They are not breakable. The lids fit quite air-tight. They will stand in any climate. They are cheap.

## SPECIAL NOTICE.

Our Boxes being made of White English Willow will not injure the most delicate preparations, and will be found quite free from the objectionable oily smell of some Boxes now being sold.

BEFORE ORDERING TURNED WOOD BOXES PLEASE SEE OUR SAMPLES AND PRICES.

## REDUCED PRICES

FOR

## MEDICAL BOTTLES

*Superior Quality, Plain and Grad., any Shape.*

3 oz. & 4 oz.      6 oz. & 8 oz.      10 oz. & 12 oz.  
6/                      7/                      10/9 per gross.

**Panelled, Pale Green, Best Quality.**

1½ oz. & 2 oz.      3 oz. & 4 oz.      6 oz. & 8 oz.      10 oz. & 12 oz.  
6/8                      7/3                      8/3                      12/ per gross.

N.B.—Not less than 6 gross assorted sizes sold at the above prices.

Equally low quotations for FLINT Bottles of all kinds.

THE NEW "QUININE" TINTED MEDICALS.

BOTTLES MADE FOR "SPECIALITIES."

**Flint Vials, Moulded, Good Quality.**

1 dr.    2 dr.    ½ oz.    1 oz.    1½ oz.    2 oz.    3 oz.    4 oz.  
2/5    2/8    2/10    3/3    3/11    4/6    6/    7/ per grs.

Not less than 10 grs. assorted sizes at these prices.

"IMPROVED" BENT

## FEEDING BOTTLES

With 7-inch black fittings, for grs., **27/**; and lettered with any name and design *free* for 5 grs. orders.

Glass Screw "Feeders," with 7-in. Black Fittings, for grs., **33/**.

All "Sundries" equally cheap, and guaranteed of a superior quality.

**T. W. SIMCOCK,**  
17 Guildford St., **LEEDS.**

## LIVER REMEDY.

PREPARED

## DANDELION

(LEA & PERRINS').

MADE WITH PURE

## DANDELION ROOT & THE FINEST COFFEE.

Sold in Tins, at 8d., 1s. 6d., & 3s. each.

## CARBOLINE (TOOTH PASTE)

1s. 6d. per Pot.

Best known Cleanser, Preserver, and  
Beautifier of the Teeth.

*Supplied by the Patent Medicine Houses on the  
usual terms or the Makers,*

**GEORGE & WELCH, WORCESTER.**

## IMPORTANT NOTICE.

TO MAKERS OF SCIENTIFIC INSTRUMENTS,  
PUBLISHERS, & PRINCIPALS OF SCHOOLS.

THE ANNUAL

## EDUCATIONAL NUMBER

OF

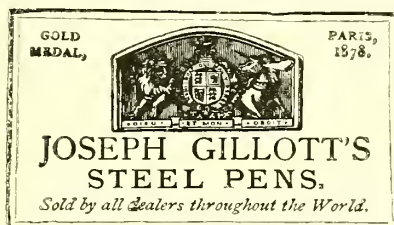
## "THE CHEMIST & DRUGGIST"

WILL BE PUBLISHED

**NEXT SATURDAY, 18th INST.**

This Issue will have an exceptional circulation, and offers an excellent opportunity for announcements to students, teachers and others.

Advertisements will be received not later than  
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**Pattison's**  
30  
VARIETIES  
AT FROM  
2/-  
PER DOZEN PAIRS.  
*Lists on application.*

ORIGINAL MANUFACTURER, [1]  
GEORGE PATTISON, 139 St. John St. Road, LONDON, E.C.

**Matthews's**  
Fullers 6d. & 1s.  
Boxes.  
**Earth.**

SOLD BY ALL THE WHOLESALE HOUSES.  
**ROUSE & CO., 12 WIGMORE STREET, LONDON.**



146, MINORIES, LONDON, E.C.  
New York  
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**SODA WATER MACHINERY**  
AND ALL ACCESSORIES FOR THE TRADE

**BRATBY & HINCHLIFFE**

HEAD OFFICE  
SANDFORD ST. ANCOATS, MANCHESTER

BOXES, BOTTLES, MACHINERY,  
ESSENCES  
Catalogues, Circulars, Testimonials  
Post Free

"ABSOLUTELY PURE."



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## ELLIS'S RUTHIN WATERS.

ESTABLISHED 1825.

Soda, Potass, Seltzer, Lemonade, Aromatic Ginger Ale.  
For Gout: Lithia Water, and Lithia and Potass Water.

ASK FOR ELLIS'S.

SOLD EVERYWHERE.

SOLE ADDRESS—R. ELLIS & SON, RUTHIN,  
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## BOURNE WATERS.

THE PUREST IN ENGLAND.

**R. M. MILLS & CO.,**  
BOURNE, LINCOLNSHIRE,

MANUFACTURERS OF

SODA, POTASH, LITHIA, AND SELTZER WATERS,  
LEMONADE, AND AROMATIC GINGER ALE.

4-dozen and 6-dozen Cases Carriage Paid  
Prices and Pamphlet on application. Agents appointed.



## VINUM AURANTII.

SPECIALLY PREPARED FOR THE DISPENSARY.

Samples and Terms on application to

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WESTON-SUPER-MARE.

HIGHLY COMMENDED BY THE "LANCET."

Colonial and Foreign orders promptly executed.

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Estab. over] MANUFACTURING CHEMISTS, [40 years.

YORK STREET, WALWORTH, LONDON, S.E.

IMPORTERS OF ESSENTIAL OILS.

SAMPLES AND PRICE LIST ON APPLICATION.

SOLE PROPRIETORS OF

## MARIGOLDINE,

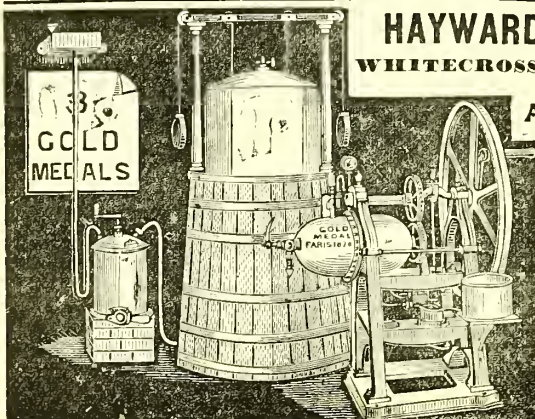
NEW COLOUR FOR BUTTER, CHEESE, &amp;c.

After a lengthened investigation, the Proprietors are enabled to offer this novel preparation, representing the rich colour of the Marsh Marigold, in a highly concentrated form. Being a Vegetable Extract, it will be found to impart to Butter a beautiful golden colour, free from taste, possessing its natural odour, and as pure as the herbage on which the animal feeds.

It is well known that in the Spring or Summer the rich colour of Butter is derivable from the Marsh Marigold and Ranunculi (Buttercups) of our pastures, and it has been the aim of the Proprietors to produce an article that will enable the dairy man to obtain uniformly the same results at all times of the year in the most agreeable form; and it is confidently believed that it will be found superior to every preparation hitherto sold for the purpose. Its perfect compatibility with oil and grease of every description (not watery compounds) makes it useful for many other purposes in which it is desired to obtain a rich and delicate golden tint.

Sold by Chemists, &amp;c., and Wholesale Houses.

W. B., Son &amp; Co. solicit inquiries, and will be happy to furnish Samples and Prices at all times.

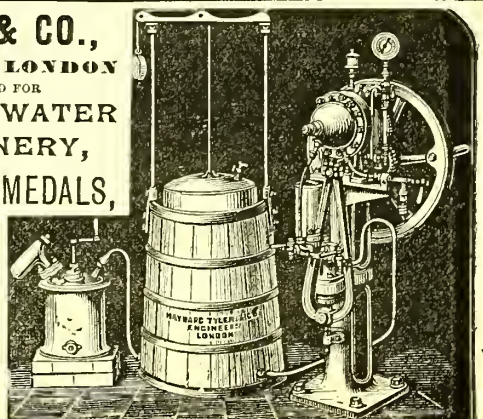


**HAYWARD TYLER & CO.,**  
WHITECROSS STREET, LONDON  
WERE AWARDED FOR  
**AERATED WATER  
MACHINERY,**  
**3 GOLD MEDALS,**

PARIS,  
1878.

LONDON,  
1884.

CALCUTTA,  
1884.





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## SOLUBLE FRUIT ESSENCES

MANUFACTURER OF HIGHLY CONCENTRATED

AND ALL OTHER REQUISITES FOR THE MANUFACTURE OF HIGH-CLASS AERATED WATERS.

Agent for Galloway's Soda Water Machinery and Hassall's Phospho-Citric Acid.

WRITE FOR PRICE LIST.

W. MEADOWCROFT, Old Bank Street, BLACKBURN, LANCASHIRE.



1878.



1873.

EUGENE GERAUT &amp; CO.,

PATENTERS AND MANUFACTURERS OF

SODA WATER MACHINES, FILLING MACHINES,

SYPHONS, SELTZOGENES, &amp;c., &amp;c.,

139 &amp; 141 FARRINGTON ROAD, LONDON, E.C.,

Late 1 and 2 CORPORATION BUILDINGS.



## NEW PATENT LEVER SELTZOGENES.

For immediate production of Eau de Vichy, Soda Water, Sparkling Lemonade, and Aerated Waters.

First introduced by EUGENE GERAUT &amp; Co. in 1853.

WHOLESALE PRICES  
as follows:—

3-pint Size, Wire, 10/0; Cane, 10/6

5-pint " " 15/0; " 15/9

8-pint " " 25/0; " 26/6

Silver-plated Tops, 5/ extra.

3-pint Size, strongly silver-plated, richly decorated

Porcelain stands ... each 30/0

5-pint ditto " " " 34/0

8-pint ditto " " " 48/0

POWDERS FOR THE  
ABOVE.

12 Charges 10 Charges

3-pint size, in Per doz. Per doz.

hand-some la- Boxes. Boxes.

belled boxes 21/0 18/6

5-pint ditto ... 30/0 26/0

8-pint ditto ... 51/0 44/6

LIBERAL DISCOUNT FOR  
QUANTITIES.

Our well-known Seltzogenes are improved yearly, and have already stood a public test of upwards of Twenty Years, and are acknowledged as THE VERY BEST.

## SYPHONS.

Clear or Coloured Glass (White, Blue, Green, or Yellow), pure ENGLISH BLOCK TIN TOPS, with Piston or Cap.

22/6

per dozen, for quantities of not less than one gross.

Packing in Cask, 5/ per gross.

The Name marked on the metals free of charge for quantities of not less than one gross.

The Name engraved with Trade Mark, from 1/6 to 2/6 per dozen extra.

Illustrated Catalogue on application.



## REDUCED PRICES.

FEVRE'S  
SELTZOGENES.

	2 PINT.	3 PINT.	5 PINT.	8 PINT.
Caned, each ... ..	8/9	10/2	15/3	26/

	2 PINT.	3 PINT.	5 PINT.	8 PINT.
Wired, each ... ..	8/3	9/9	14/6	24/6

£2 worth or more, 5 per cent. discount.

MAY, ROBERTS &amp; CO., 9 CLERKENWELL ROAD, LONDON, E.C

Temporary Address during Rebuilding of Premises—9 MOOR LANE, E.C.

Telegraphic Address—"MOAB LONDON."

## VALLET'S PATENT IMPROVED STOPPERED BOTTLES,

For Mineral Waters and Gaseous Liquids,  
Are now used by upwards of 1,000 Soda Water Manufacturers in the United Kingdom.SAMPLES AND PRICES OF BOTTLES AND STOPPERS  
ON APPLICATION.

Fig. 9. Boxwood Bottle Openers, polished ... .. 8/6 per gross.

Ditto, fitted with indiarubber inside ... .. 10/6 "

Fig. 10. New Bottle Opener, fitted with rubber ... .. 6/ "

ROYALTY FREE.



Fig. 3.

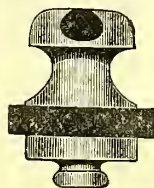


Fig. 6.

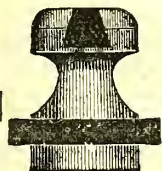


Fig. 1.



Fig. 7.

It will be seen by reference to figs. 6 and 7 that I now form a button or nut under the base of my Stopper for the purpose of easily extracting same from the Bottle without spoiling or removing the indiarubber from the body of the Stopper. This is readily accomplished by the use of a suitable tool made to fit on the nut; the Stopper being grasped in withdrawn from the bottle in a second, without injury to the Stopper.

Therefore, it will be a great saving to Mineral Water Manufacturers, as by the old way of extracting the Stoppers from the Bottle, when necessary, very often the indiarubber is spoiled, and the time it takes by this slow process is worth more than the Bottle itself; so that in many instances Bottles with spoiled or dirty Stoppers are put aside as worthless stock.

Figs. 1 and 6 Stoppers, when invoiced without Bottles, are ready fitted with the rubber washer on, and are easily inserted into the Bottle by the simple pressure of the thumb, the washer at the same time folding in the hollow part of the stem, when passing into the Bottle. They are the only Stoppers which require no tool to fit into the Bottle; and when a Bottle breaks, which seldom occurs, the Stoppers are always fitted with washer and ready to be inserted in a new Bottle. Therefore they are the most durable and inexpensive Stoppers in the Trade.

Sample and Particulars sent on application to

L. VALLET, 49 EVERTON RD., LIVERPOOL.



ONLY PRIZE MEDAL,

**READ**

THE FOLLOWING SELECTIONS FROM

**OVER 300 TESTIMONIALS**

RECEIVED FROM

*MEDICAL MEN, CHEMISTS, and HOSPITALS respecting the Waters manufactured by***THE CHEMISTS' AERATED & MINERAL WATERS ASSOCIATION, LTD.**

From J. THOMPSON, Esq. (Messrs. MAW, SON & THOMPSON),  
7 to 12 Aldersgate Street, London, E.C.

... Both the Soda and the Potash Water are in my opinion excellent.  
Signed, J. THOMPSON.

From J. CAMERON, Esq., M.D., &c., Medical Officer of Health, Hendon, N.W.  
Dear Sir,—Having used and examined the waters prepared by the Chemists' Aerated and Mineral Waters Company, I am of opinion that they are of pure quality, well charged with gas, and being prepared according to the formula of the British Pharmacopœia, they contain a fixed quantity of various salts, which are useful in the treatment of disease.

I am, dear Sir, yours truly,

Signed, JAMES CAMERON, M.D., &c.

From A. S. THORBURN, Esq., M.D., L.R.C.S., 7 Catherine St., Strand, W.C.  
To the Secretary.

Dear Sir,—I have used your waters for some years, and am so perfectly satisfied with the quality, purity, and aeration, that I recommend them with confidence to my patients. I think that your system of making waters up to strength as prescribed by the British Pharmacopœia and stating that fact on bottles, &c., is an excellent one, and one that I have not noticed elsewhere. (Signed) A. S. THORBURN, M.D., L.R.C.S.

From ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,  
Leicester Square, W.C., and Markham Square, S.W.

Dear Sir,—I have much pleasure in answering your question as to the feeling that has been expressed by the authorities of this hospital in reference to the mineral waters supplied by the Chemists' Aerated Waters Association. Allow me to state that we have now used your Association's waters for a considerable time and we have invariably found them as good as good could be; I have not once had any complaint as to them—on the contrary.

Yours truly,

Signed, ST. VINCENT MERCIER, Secretary.

From the NORTH LONDON CONSUMPTION HOSPITAL, Mount Vernon,  
Hampstead.

Dear Sir,—I have much pleasure in saying that the aerated waters supplied by your Association to the North London Consumption Hospital for several years were very good in quality and purity.

Yours faithfully,

Signed, W. HORNIBROOK, Secretary.

**CONSULTING CHEMIST TO THE ASSOCIATION,**

WILLIAM FOSTER, M.A. (Camb.), F.C.S., Fellow of the Institute of Chemistry, Professor of Chemistry at the Middlesex Hospital, &c., &c.

**CHEMISTS' AERATED & MINERAL WATERS ASSOCIATION, LTD.,**  
**LONDON. BRISTOL. HARROGATE.**

**J. DUNLOP MITCHELL & CO.**

Office and Show Rooms: 130 to 136 INGRAM STREET, GLASGOW.

**THE BEST & HANDSOMEST WATER FILTERS EVER MADE.**

No one should drink unfiltered water. It is an acknowledged fact that nearly all our illnesses originate by drinking impure water. No house or establishment should be without one or more of our new "Mountain Dew" or "Rippling Rill" (Registered) Water Filters, entirely made of glass, in 1 and 2 gallons capacity.

**FEEDING BOTTLES**—Tinted, 24/ per gross; White Glass, 26/6.

**BOTTLES** of every description of shape and size, panelled and plain, stoppered and not, also with and without white metal screw tops, at lowest prices. Show and specimen Bottles, Glasses, and Jars in great variety; also Laboratory Glassware. Show and Stock Bottles and Barrels, after the style of Illustrations, in White Glass  $\frac{1}{2}$ , 1, 2, 3, and 4 gallons capacity, fitted with glass stoppers and silvered taps.

Perfect Security by Post and Rail. Corrugated paper-lined Boxes made any size, and fitted for one or more bottles. Also Wooden Post Boxes.

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Illustrations, Samples, and Prices on application.

Correspondence solicited.

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MANUFACTURERS OF EVERY DESCRIPTION OF

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FOR INTERMITTENT OR CONSTANT SUPPLY.

See Reports, Analyses, &amp;c. Detailed Lists on application.

To be obtained of all Dealers.

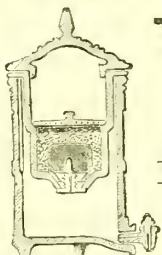
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DEPOTS:—100 Soho Street, LIVERPOOL; Granville Wharf, BIRMINGHAM; and 6 Rue de Paradis, PARIS.

HIGHEST PRIZE MEDAL



BRADFORD, 1882.





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MANUFACTURING CHEMISTS,

DISTILLERS AND IMPORTERS OF

## ESSENTIAL OILS AND FRUIT ESSENCES,

INVENTORS OF

SOLUBLE ESSENCES FOR AERATED WATER  
AND CORDIAL MANUFACTURERS.

## FRENCH CREAM GUM EXTRACT,

PROTECTED BY ROYAL LETTERS PATENT,

*For producing a head of Creamy Richness upon all kinds of Syrups, Aerated Waters, Beers, Ales, Cider, Champagne, &c., 2s. 6d. per pound.*

W. J. BUSH & CO. regret having to Caution the Trade against spurious imitations of this article, most of which are mere rubbish.

## W. J. BUSH & CO.'S

## ENGLISH DRAWN ESSENTIAL OILS.

OL. AMYGD. ESSENT. ANG.

OL. AMYGD. ESSENT. ANG.

*Sine Acid. Prussic.*

OL. ANETHI ANG.

OL. CARUI ANG.

OL. CARYOPH. ANG.

OL. CUBEBAE ANG.

OL. COPAIBAE ANG.

OL. CINNAM. VER. ANG.

OL. MYRISTICÆ ANG.

OL. MENTH. PIP. MITCH.

OL. MENTH. PIP. MITCH.  
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} W. J. BUSH & CO.'S SPECIALITY.

ARTILLERY LANE, BISHOPSGATE, LONDON.



# Hunyadi János

**CAUTION.**—Circumstances which have come to the knowledge of Andreas Saxlehner, Buda Pest, Sole Proprietor of the Hunyadi János Spring, compel him to warn the British Public against SPURIOUS IMITATIONS. To secure genuineness, purchasers should see that every bottle has on the LABEL the name of "THE APOLLINARIS COMPANY (LIMITED), London."

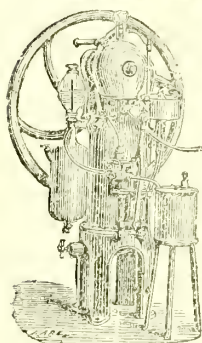
## H. FAVARGER.

GOLD MEDAL]

MONDOLLOT'S PATENT

[PARIS, 1878.

### SODA WATER MACHINERY.



The "MEDIUM"  
The "MEDIUM"  
The "MEDIUM"  
The "MEDIUM"  
The "MEDIUM"  
The "MEDIUM"  
The "MEDIUM"

is guaranteed to make extra sharp Soda Water, and the finest Lemonade, Ginger Beer, Ginger Ale, &c.

requires no skilled labour, and can be worked by hand or steam power.

saves 50 per cent. of materials over any other hand machine, and requires less power.

will last for years without repairs beyond the renewal of washers.

requires no gasometer, and occupies but a quarter of the room of an ordinary machine.

is automatic in all its work, and merely requires the wheel to be turned.

is of the finest workmanship, and is in use all over the world.

Apply for illustrated Catalogue to

H. FAVARGER, 75<sup>C</sup> TURNMILL STREET, LONDON.

## JEWSBURY & BROWN'S

(MANCHESTER)

### SPARKLING TABLE WATERS,

UNRIVALLED FOR PURITY AND QUALITY.

SODA WATER.

SELTZER WATER.

POTASH WATER.

LITHIA WATER.

SIMPLE

AERATED WATER.



LEMONADE.

GINGER ALE.

QUININE TONIC.

GINGER BEER.

HOREHOUND BEER.

#### EXTRACTS FROM ANALYTICAL REPORTS.

"The examination of the Waters which I have made has satisfied me that they have been prepared with the greatest care, and are of excellent quality."

FRANCIS JONES, F.R.S.E., F.C.S.

"On the whole, I have no hesitation in stating that your Aerated Waters are of the highest standard of purity which is practically attainable."

LOUIS SIRBOLD, F.I.C., F.C.S.

"The Lemonade is, for flavour and general excellence, superior to any similar compound which I have examined, and contains no acid but Citric Acid."

"I took a sample of the water used in your manufactory, in the preparation of the Aerated Waters, and found it, as was the case with the completed compounds, entirely free from lead, copper, or any injurious matter whatever."

C. ESTCOURT, F.C.S., F.C.I.

J. & B.'s Syphons are mounted with PURE BLOCK TIN, thus ensuring absolute immunity from dangerous metallic contamination

113 MARKET STREET, and 44 DOWNING STREET, MANCHESTER.



**CURIOUS ADVERTISEMENT OF 100 YEARS AGO!!**

# PEARS' SOAP



gives  
com-  
plexions  
as  
vnto  
new  
milk  
and  
ripe  
cherries

*Comely dames, brave squires, pretty little misses  
& smart little masters, regularly use*

# PEARS' SOAP

*Pears - Soapmaker to ye King  
Pears' Soap can be bought at all ye shopp<sup>e</sup>s*



BY ROYAL LETTERS PATENT.

# MASSALL & CO.'S PHOSPHO-CITRIC ACID

TO SUPERSEDE CITRIC AND TARTARIC ACIDS FOR AERATED WATERS.

Is recommended by the most eminent Physicians in Great Britain. The Best Houses in the Trade have already adopted it. It is thoroughly beneficial, and far better suited to the requirements of the Mineral Water Trade; it is free from lead and all other minerals and cheap acids; it is fully £6 per cwt. cheaper than Citric Acid.

## WE COMPETE ON QUALITY & PRICE.

THE PATENTEES CLAIM FOR IT, AMONGST OTHERS, THE FOLLOWING ADVANTAGES:—

1. That there is no risk of prosecution, and consequent ruin of business, for lead contamination.
2. That it does not deteriorate by exposure, and will retain all its properties any length of time.
3. The price is only 10d. per lb. in 9 and 18 gallon casks; if in smaller quantities, 1s. per lb.
4. It is now an established fact that the beverages made with this acid far excel all others in keeping properties, as there is not the fungoid growth that there is with other acids.
5. The Essences retain their strength to a greater degree.
6. A thoroughly clear and pure beverage is obtained, whilst a greater "body" and more fruity character is imparted.
7. Time and labour saved. Being in liquid form, requires only to be measured and added direct.
8. It is entirely free from Sulphuric, Hydrochloric, Nitric, Acetic, or other cheap Acids.
9. It does not affect the metal pipes to the same extent that Citric and Tartaric Acids do.

3-oz. Sample will be sent on receipt of postage (3 stamps), or 14 lbs. will be sent on approbation.

Extract from the "ANALYST," the medium of communication between Public Analysts, for September 1884—

CITRIC and tartaric acids have long been used for acidulating or giving to mineral water their acid flavouring, but these acids have certain disadvantages, inasmuch as their solutions cannot be kept for any great length of time without the formation of a fungoid growth, and also the extreme difficulty of obtaining them free from lead. A solution has recently been offered to the trade called Phospho-Citric Acid, the properties of which will no doubt interest Analysts. Poisonous metals were entirely absent, and so also were free sulphuric, hydrochloric, nitric, and acetic acids. The solution was clear and colourless. The quantity of phosphoric acid in a small bottle (half-pint) will amount to 95 grains, which I found to be the case in a sample of lemonade made with the above. The flavour and appearance were quite as good as that made with the organic acids. There is no reason why this article should not be used in this highly diluted form as the acid flavouring of lemonade and other mineral waters.

### JAMES NAPIER'S REPORT, July 30, 1884.

I examined samples for poisonous metals, especially arsenic, lead, and copper, but could not find the slightest trace. Free sulphuric, hydrochloric, nitric and acetic acids were also absent; indeed, no free acid exists but phosphoric and citric. From analysis and careful examination, I am of opinion that, as an article to supersede tartaric and citric acids in mineral waters, phospho-citric is in many respects superior to those acids. As is well known, it is almost an impossibility to obtain tartaric and citric acids free from lead, so that this article, having no metallic contamination, is purer than those acids. I see no reason why the use of phosphoric acid, in a highly diluted form, will not prove beneficial and be much more superior to tartaric and citric acids. As phosphoric acid is a necessary constituent of the body, whilst tartaric and citric acids are entirely absent, it is certainly an advantage to use it, as it supplies a very important ingredient to the system and one which is too often obtained in insufficient quantities. The lemonade was entirely free from metallic contamination and fungoid growth, had a bright appearance, was particularly clear, and had a very agreeable flavour. I have no doubt but Phospho-citric Acid will be much used, as it is well suited for its intended purpose, i.e., to supersede citric and tartaric acids in mineral waters.

JAMES NAPIER, F.C.S., F.I.C., Public Analyst, London.

### Dr. HASSALL'S REPORT.

The Analytical Sanitary Institution, 51 Holborn Viaduct, E.C., London, June 25, 1884.

Having submitted to analysis a sample of Phospho-citric Acid, we find it to be entirely free from lead and other metallic impurities. Free sulphuric, hydrochloric, and acetic acids were also specially tested for, and found to be absent. The solution was clear, colourless, and, when sufficiently diluted, possessed an agreeable flavour. It is evident from the foregoing particulars that this preparation is well suited to supersede tartaric and citric acids, commonly employed in the manufacture of acidulated and aerated waters; while in its cheapness, freedom from metallic contamination, and in the circumstance that it would tend to preserve beverages made with it for a greater length of time (as there would be less tendency to the development of the fungoid growth frequently observed when the ordinary acids have been used), Phospho-citric Acid offers very considerable advantages.

Author of "Food: its Additions and Methods for their Detection."

The above is also confirmed by EDWIN GODWY CLAYTON, F.C.S., &c., &c.

### Professor JUSTUS VON LIEBIG,

Equally well known in England and Germany, says: Phosphoric Acid is a never-failing ingredient of all the organised structures of the animal body. The substance of muscular fibre, the fibrine of the blood, the pulmonary tissues, the liver and the kidneys contain an amount of phosphoric acid in chemical combination. The bones of the vertebrata contain more than half their weight of phosphates of lime and magnesia. The substance of the brain and the nerves contain phosphoric acid. The blood contains under all circumstances a certain amount of phosphoric acid.

### Dr. WILLIAM B. CARPENTER

Says: Phosphorus exists in combination with albuminoid compounds, and in all animal substances composed of these. The proportions of phosphorus in the brain is considerable, being from 5 to 18 parts in 1,000 of the whole mass, or from 1-20th to 1-30th of the whole solid matter. It seems to be unusually deficient in the brains of idiots.

123 Lonsdale Street West, Melbourne, June 11, 1885.

Gentlemen,—We have tried the Phospho-citric Acid and have much pleasure in pronouncing it a decided success. It is free from any objectionable flavour or taint, and being in liquid form is a great boon, as the time and trouble in weighing and dissolving the other acids is a consideration in the busy time. We consider all aerated-water makers will find it greatly to their advantage to adopt the use of it.—Yours sincerely, R. O'DONNELL & Co.

46 Myddelton Street, London, E.C., August 20, 1885.

Gentlemen,—After fifteen months' continuous use of your acid we have much pleasure in testifying to its excellence. We find it possesses all the properties required by us for our trade, and is at the same time a great saving in time and expense.—Yours respectfully, R. MAYER & SONS.

2, 3, and 4 Rose Lane, London, August 18, 1885.

Gentlemen,—We have now been using your Phospho-citric Acid over fourteen months, and have much pleasure in stating that we like it very much. It is certainly easier to work with than citric and much cheaper. We can find no fault whatever with it.—Yours truly, T. WATTS.

Catherine Street, Strand, May 7, 1885.

Gentlemen,—We have much pleasure in stating we have used your Phospho-citric Acid for several months, and find it a great improvement to the flavour of the lemonade, &c., also about 70s. per cwt. less than citric acid crystals. It is also a great boon in the saving of time, as it is always ready for instant use.—We are, yours respectfully, W. K. LISTER & CLEMON.

Newcastle-on-Tyne, August 28, 1885.

Gentlemen,—I have now been using your Phospho-citric Acid for a considerable time, and have much pleasure in saying that it is the best and most economical article for the purpose I have met with. In my opinion it is far superior to the ordinary acids, producing a better beverage, and far easier to manipulate.—Yours truly, W. GLENDINNING.

Cathay, Bristol, August 12, 1885.

Gentlemen,—I have used your Phospho-citric Acid daily for the last ten months with a rapidly-increasing business, to the satisfaction of my customers and profit to myself, being only about half the cost of the other acids and ready for instant use; it gives me every satisfaction.—Yours respectfully, C. E. BEAVIS.

3 Sussex Street, Blyth, November 12, 1884.

Gentlemen,—I am happy to inform you that I have tried your Phospho-citric Acid, and I find it quite as good as you represent it to be. It saves labour, and is little above half the price of citric and tartaric acids. The cask I ordered last week is to hand.—I remain, yours respectfully, THOMAS FORSTER.

## SCORES OF TESTIMONIALS MAY BE SEEN AT ANY TIME.

Sole Agents for Australia and New Zealand—

LAWRENCE & O'FARRELL, 86 Queen St., MELBOURNE.

HERBERT RAYMOND, 26 Exchange, Pitt St., SYDNEY.

**HASSALL & CO.,** No. 1 WAREHOUSE, GT. NORTHERN GOODS DEPOT, KING'S CROSS, LONDON.



Telephone Number,

1852.

## Advertisers' &amp; Buyers' Reference List,

AND INDEX TO ADVERTISEMENTS.

TELEGRAPHIC ADDRESS—

CHEMDRUG

LONDON.

## ADVERTISEMENTS APPEARING IN THIS ISSUE OF "THE CHEMIST AND DRUGGIST."

Please note that to satisfy Post Office requirements the Advertisements are paged twice—once in Arabic, once in Roman numerals.

<b>A1 MENTHOL CONES</b> ..... Menthol in Variety 23 <b>ALLEN &amp; HANBURY'S</b> ..... Liquid Malt, Fluid Extracts, &c., Wholesale Druggists..... COVER <b>AMBRECHT, NELSON &amp; CO</b> ..... Coca Wine 22 <b>APOLLINARIS CO.</b> ..... Apollinaris Water vii, Hunyadi Jancs vii, 8 <b>ASSISTANTS WANTED</b> ..... Friedrickschall Water, TEXT 350 <b>AUSTIN &amp; CO.</b> ..... Coloured Supp. Cardboard Boxes, Perfume Sprinklers, &c. 17	<b>GEORGE &amp; WELCH</b> ..... Dandehon Coffee, &c. 3 <b>GERAUT, EUGENE, &amp; CO.</b> ..... Machinery, Syphons, &c. 5 <b>GIBSON, R.</b> ..... Lozenges 23 <b>GILLOTT, J.</b> ..... Pens 3 <b>GOODALL, BACKHOUSE &amp; CO.</b> ..... Yorkshire Polish, &c. 27 <b>GOVERNMENT (THE) SANITARY CO.</b> ..... Disinfectant 1 <b>GRINDLEY &amp; CO.</b> ..... Petroleum Jelly 22 <b>GT. TOWER ST. TEA CO.</b> ..... Celebrated London Teas iii	<b>METCALF, THEODORE</b> ..... Coca Wine xi <b>METZ, P.</b> ..... Willow Boxes vii <b>MILLS &amp; CO.</b> ..... Bourne Aërated Waters 4 <b>MORGAN CRUCIBLE CO.</b> ..... Crucibles 22 <b>MUMFORD, G. S.</b> ..... Linseed, Sarc, Fuller's Earth, &c. TEXT 350 <b>MURRAY, SIR JAMES</b> ..... Fluid Magnesia, Fluid Camphor x
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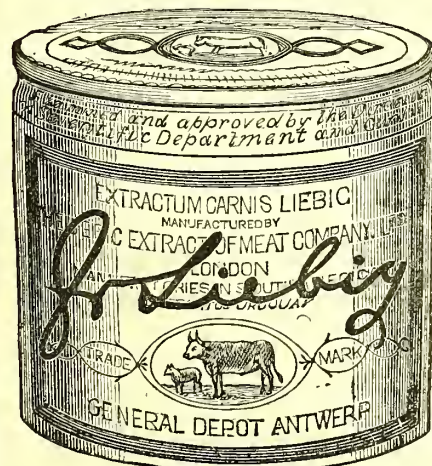
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Botany (Structural) ... ..	15 "
Botany (Practical) ... ..	10 "
Pharmacy ... ..	10 "
Chemical Physics ... ..	5 "
Examination Papers ... ..	10 "

In order to thoroughly prepare those students who avail themselves of the Postal System of preparation for the Major and Minor Examinations of the Pharmaceutical Society, we circulate amongst our pupils the parts of Bentley and Trimen's Medical Plants.

Fee for the complete course, £1 1s. 0d.

For further particulars apply to

## Messrs. WILLS & WOOTTON,

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CARBOLIC POWDER (PINK) in 1 Cwt. 2 Cwt. CASKS 1lb & ½ Packages.

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CARBOLIC SOAP N<sup>o</sup> 1 & N<sup>o</sup> 2  
CARBOLIC & GLYCERINE SOAP in 1/4 lb. TABS

THE GOVERNMENT SANITARY CO.,  
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TO BE HAD FROM ALL  
WHOLESALE DRUGGISTS.





CONCENTRATED PATENT  
**PEPTONISED MILK**  
 AND  
**PEPTONISED MILK AND COCOA.**

These two preparations are made with pure rich PRE-DIGESTED Country Milk, and, by mere dilution with hot water, afford a delicious restorative beverage the assimilation of which requires no digestive effort.

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Tins, 1s. 6d. and 2s. 6d. Obtainable Everywhere.

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NOTICE IS HEREBY GIVEN that in several actions instituted by Messrs. GOODALL, BACKHOUSE & CO., of LEEDS, Injunctions have been recently granted by Judges of the Chancery Division of the High Court of Judicature, restraining several persons from using several Counterfeits of Messrs. GOODALL, BACKHOUSE & Co.'s Labels, and in particular against the use of the words "YORKSHIRE RELISH." The sole and exclusive right to the use of which words having been finally established by the above Firm, they will take immediate proceedings against parties manufacturing or offering for sale Sauce under the above title, not being of the manufacture of Messrs. GOODALL, BACKHOUSE & Co.

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*Solicitor to the Trade Mark Protection Society.*

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 STEAKS,  
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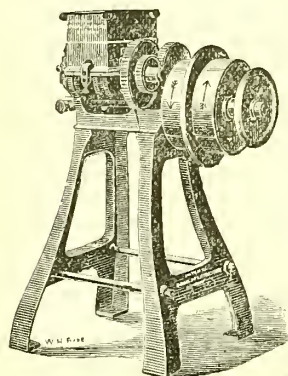
Each Bottle  
 of this celebrated  
 Sauce, prepared from  
 the *Original Recipe*, bears  
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*Elizabeth Lazenby*

This Label is protected by PERPETUAL INJUNCTION in Chancery of the 9th July, 1858, and without it none can be GENUINE.

Prepared only by **E. LAZENBY & SON, LONDON.**

And sold Retail by Grocers, Oilmen, Italian Warehousemen, &c., throughout the Kingdom.



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PILL MASS KNEADING MACHINES.

PILL MAKING MACHINES.

DRUG GRINDING MACHINES.

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FULL PARTICULARS OF ABOVE ON APPLICATION TO

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**BAILEY'S MINTON-WARE BOWL DRUG MILL.**

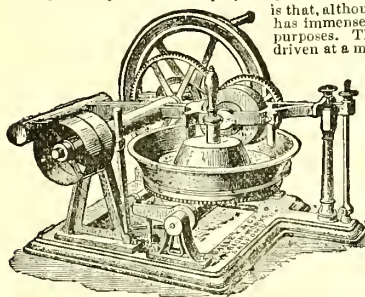
(CARR'S PATENT.) FOR HAND OR POWER.

Will reduce Crystals to an impalpable powder. The chief feature of this machine is that, although it can be turned with ease, it has immense frictional power for levigating purposes. This is caused by the runner being driven at a much greater speed than the bowl.

Diameter of Bowl, 18 inches.

Price, £11.

Lists, &amp;c., on application.



Mr. J. DUTTON, Rock Ferry, Birkenhead, says—"The Mill you sent me answers admirably for powdering all kinds of Salts, and for many other things, such as Opium, Seamen's Soap, Almonds, Mace, &c. It also effects a great saving of time and labour in mixing various powders, such as Tooth Powder, Lemon and Koli, &c., and proves a very useful apparatus in the shop."

**W. H. BAILEY & CO., ALBION WORKS, Salford, MANCHESTER.**

"laden with the scent of flowers,  
And breath of odorous Spring."

**SPINNER'S TEAS.**

A company of Merchants are now selling through SPINNER & CO. the choicest Teas that come from India and China at 2/8, 2/4, 2/, and 1/8 a pound, in packets only. These are the perfection of Teas, and will please the most fastidious.—Agents wanted in every town and village. For Terms apply to SPINNER & Co., 60 Strand, London.

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BROKEN-LEAF TEA, 1s. 8d. per lb.

A MONEY SAVING TEA. ABSOLUTELY PURE.

The small leaf from some of the finest India and China Teas. Produces a Tea in the cup, stronger, richer, and cheaper than most whole-leaf Teas. Agents appointed, where unrepresented, throughout the United Kingdom.

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INTERMEDIATE TEA, 2s. per lb.

BEST at the PRICE EVER SOLD. Great strength and a most useful Tea where there is a large consumption. Recommended to all who wish to SAVE in their Tea. Agents appointed, where unrepresented, throughout the United Kingdom.

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Prospectus and Samples Free on Application.

Warehouses, 154, 155, 159 and 160 WHITECHAPEL ROAD, and

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12½ gals. for £1, Cask free.

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**WORCESTER SAUCE,**  
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**BEST VALUE THAT MONEY CAN PURCHASE.**

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**LONDON, S.E.**

**TOWER TEA**

A SAFE and PROFITABLE addition to a Chemist's Business.

For retail at



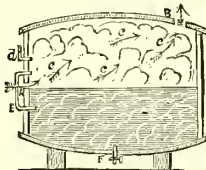
The London Broken Tea ... 1/8

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For Testimonials and References see the full page Advertisement which appears monthly in this Journal. Last insertion August 28, page vi.

**THE GREAT TOWER STREET TEA CO., LIMITED,**  
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**NEW METHOD OF MAKING VINEGAR,**  
**BY THE REVOLVING APPARATUS**  
(Michaelis' Patent).

For further particulars

See the Chemists' and Druggists' Diary, 1884, page 274,  
OR APPLY TO

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Duty-paid parcels in 20-lb. caddies or 56-lb. ½-chests. Carriage paid on ½-chests. Terms, net cash.

**FINE COFFEES (Roasted)—** 9d. | 10d. | 11d. | 1/ | 1/1 | 1/2 | 1/3 | Mocha, 1/4 | Finest Mysore, 1/5 |

In 28-lb., 56-lb., or 112-lb. bags; also supplied raw or ground. Terms cash, less 2½ per cent. discount.

**THE NEW FRENCH COFFEE CAFÉ FRANÇAIS**

To sell at 10d., 1/, and 1/4; in ½-lb., 1-lb., and 1-lb. Canisters.

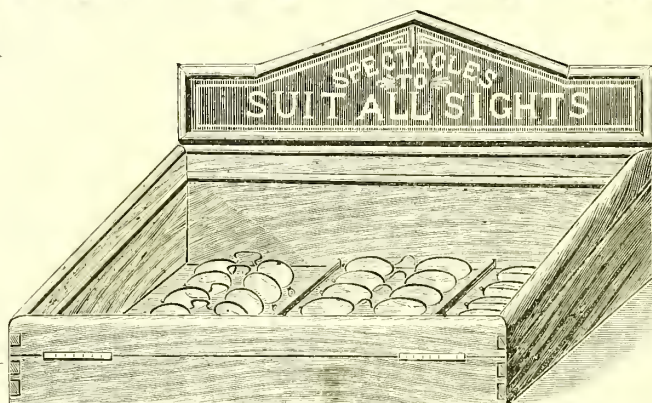
FULL PARTICULARS, PRICE LISTS, SAMPLES, AND ANY INFORMATION ON RECEIPT OF TRADE CARD.

**EXPORT DEPARTMENT.**—Every variety of Tea or Coffee in bond. Shipped f.o.b. London against banker's credit or remittance. Samples, price current, and every information on application.



# DARTON'S

Show  
Cases



of  
Spectacles.

CHEMISTS commencing the Spectacle business will find these Show Cases arranged with an assortment of Spectacles and Folders of all sights, to meet the requirements of purchasers. The quality and quantity may be varied to suit any class of trade at customer's wish. The Spectacle Show Case is of Solid Polished Mahogany, well made and finished, to stand any climate. A large Coloured Show Card is sent with each case.

The following is a summary of the contents of our £2 2s. Case, which bears a profit of 36/-, after paying for Show Case and Sight Tester, for which we allow 15/- if not required.

		s.	d.
2 Dozen Steel Frame Spectacles, Joints, with Screw and Pin .. .. .	to sell 1/0 per pair	7	0
1 " Ditto, better quality, stout frames, Straw or Blue Steel .. .. .	" 2/6 "	10	6
1 " Folders, Steel Frames and Placquets .. .. .	" 1/0 "	5	6
1 " Leather Tuck Spectacle Cases .. .. .	" 6d. each	2	6
1 " Folder Cases .. .. .	" 4d. "	1	6
Show Case and Sight Tester		15	0
		£2	2 0

## Our £3 3s. Case contains -

		s.	d.
2 Dozen Steel Frame Spectacles, Joints, with Screw and Pin .. .. .	to sell 1/0 per pair	7	0
1 " Better quality ditto, Straw or Blue Steel, best White Glasses .. .. .	" 3/6 "	15	0
1 " Folders, Steel Frames and Placquets .. .. .	" 1/0 "	5	6
1 " Best Nickel Folders .. .. .	" 3/6 "	16	0
1 " Spectacle Cases, Leather .. .. .	" 6d. each	3	0
1 " Folder Cases .. .. .	" 4d. "	1	6
Show Case and Sight Tester		15	0
		£3	3 0

## Our £6 6s. Show Case contains -

		£	s.	d.
2 Dozen Steel Frame Spectacles, Joints, with Screw and Pin .. .. .	to sell 1/0 per pair	7	0	
1 " Ditto, better quality .. .. .	" 1/6 "	6	6	
1 " Ditto, better quality, stout frames, Blue or Straw Steel .. .. .	" 3/6 "	15	0	
1 " Light Straw Steel Spectacles .. .. .	" 5/6 "	1	4	0
1 " Folders .. .. .	" 1/0 "	5	6	
1 " Ditto, Nickel .. .. .	" 3/6 "	16	0	
1 " Ditto, light grooved, invisible .. .. .	" 5/6 "	1	1	0
1 " Frog Mouth Cases .. .. .	" 1/0 each	7	0	
1 " Tuck Cases .. .. .	" 6d. "	2	6	
1 " Folder Cases .. .. .	" 4d. "	1	6	
Large size Show Case and Sight Tester		1	0	0
		£6	6 0	

## Our £10 10s. Case contains -

		£	s.	d.
3 Dozen Steel Spectacles, Joints, with Screw and Pin .. .. .	to sell 1/0 per pair	10	6	
2 " Ditto, better quality .. .. .	" 2/6 "	1	1	0
1 " Light Straw Steel ditto, best White Glasses .. .. .	" 5/6 "	1	4	0
1 " Invisible ditto, ditto, ditto .. .. .	" 6/6 "	1	10	0
1 " Blue and Straw Steel Frames, with Pebble .. .. .	" 7/6 "	1	13	0
1 " Tinted Spectacles, assorted colours .. .. .	" 2/6 "	10	6	
2 " Folders, Steel Frames and Placquets .. .. .	" 1/0 "	11	0	
1 " Ditto, Nickel and Shell Placquets .. .. .	" 3/6 "	16	0	
1 " Ditto, Light Invisible .. .. .	" 5/6 "	1	1	0
1 " Best Morocco Frog Mouth Cases .. .. .	" 1/0 "	7	0	
1 " Leather Tuck .. .. .	" "	2	6	
1 " Folder Cases, best .. .. .	" "	2	6	
Large size Show Case and Sight Tester		1	1	0
		£10	10 0	

## LARGER ASSORTMENT OF SUPERIOR PEBBLE SPECTACLES AND FOLDERS, &c., £21.

"THE CHEMIST AND DRUGGIST," May 15, 1886, says:

"Messrs. F. DARTON & CO., of 45 St. John Street, West Smithfield, who have long made a specialty of supplying Chemists with spectacles and some scientific instruments, and have thus gained considerable experience as to the requirements of beginners in the business, have followed up this experience by fitting up a number of show cases with various stocks, enabling chemists to start in the trade with the minimum of risk and the maximum of facility. The cases are well made, and are quite ornamental, and the spectacles are sold at very moderate wholesale prices, presenting an opportunity for a rate of profit to which chemists are getting unaccustomed."

Send for fully Illustrated Catalogue and Descriptive Pamphlet, with Table of Sights, post free on receipt of Trade Card.

Please order in full, Darton's Show Cases of Spectacles, when ordering through your Agents.

# F. DARTON & CO.,

WHOLESALE OPTICIANS, MAKERS TO HER MAJESTY'S GOVERNMENT,

## 45 ST. JOHN STREET, WEST SMITHFIELD, LONDON. E.C.

ESTABLISHED 1834.

Telegraphic Address—"EXCEPTIONAL LONDON."



## Lanoline (Liebreich).

THE NEWLY DISCOVERED BASIS  
FOR OINTMENTS.

Lanoline is a fat natural to the hair and skin, and fulfils all the requirements of a perfect basis for ointments—in consistence, its melting point not being below body heat, in homogeneity, and freedom from hard or crystalline bodies, in its miscibility with water, receptivity of all medicaments indifferently, preservability, non-irritant properties, and absorptive and absorbable nature; it is neutral (never rancid), slightly tenacious and adhesive, and perfectly bland and soothing.

Prof. Oscar Liebreich has shown that the natural fat of hair is neutral, will not turn rancid, is absorptive and penetrating, perfectly preservable, and that while in ordinary fats the radical is glycerine, in this it is cholesterine (a monatomic alcohol). The Professor has found this fat in human epidermis, hair, vernix caseosa, whalebone, horn shavings, feathers, etc., and named it Lanoline.

Under the head of "œsopus, sordes, or filth sticking to the wool," the ancients tell how to prepare an ointment from "greasy wool." It should hardly be supposed, however, that the "œsopus" spoken of by Dioscorides is the same as Lanoline. It differed from the latter in being abundant in fatty acids. Apropos, we may say that no sooner was Lanoline introduced than a number of imitations, variously named, were forthwith projected. We find that they contain impurities detrimental to the skin, as ammonia, glycerine, free acids, etc. They should not be confounded with Lanoline.

Lanoline is manufactured mainly from wool, by "transforming the wool fat into a milk, and then subjecting it to centrifugal action." By this operation "a thin milk and cream are obtained"—just as when milk is subjected to centrifugal action—and the cream contains Lanoline in a pure condition.

While Lanoline is not quite so smooth as vaseline, yet in the same time twice as much of it can be absorbed as of vaseline; besides, medicaments can be incorporated into it as they cannot into vaseline or anything else. "It has the advantage that the skin, after being rubbed dry with a cloth, still remains soft and pliable," and silk or paper passed over it gives no grease stain. It may be said that medicines mix poorly with fats, and fats decompose; and that with vaseline absorption is very imperfect, for mineral fats do not penetrate the skin like animal fats, and they irritate besides. Another point: Water is frequently indicated in ointments. Pure fat has little or no affinity for water or like fluids, and glycerine fats are split by water into glycerine and fatty acids; so the use of water partly accounts for rancidity. The effects of a fatty acid on the skin are familiar to all. Lanoline removes all necessity of using ointments of such unabsorbable bases as lard, beef suet, fats, wax, spermaceti, etc.

At first petroleum fats gave promise of being very useful, for they are stable and preservable, of fair consistency, and protective; but, on the other hand, it was soon found that they are but slightly absorbable, poorly miscible with fluids, and irritate delicate skins, often causing eczema. Vaseline and paraffine hinder the absorption of Lanoline, which comparative experiments demonstrate is far superior for ointment to lard rubbed with fat, or any other basis. Animal and vegetable fat—the glycerides of fatty acids—have but too imperfectly supplied the need of a good basis for ointments or plasters. So penetrating is Lanoline, however, that but half the usual quantity of any drug prescribed should be employed in making ointments of it.

Medicaments incorporated into it can be infinitesimally subdivided, as is requisite for quick absorption. Dr. Lassar has shown the quicksilver in blue ointment made with Lanoline in the underlying layers of the skin.

Lanoline exerts a healthful action on the skin, and hair oiled with it soon has a more silken feel, and shortly shows no sign of oil. Both the hair and the scalp absorb it readily; hence its usefulness in sycosis, tinea, pityriasis, etc.

Dr. Behrend, after extensive trials, recommends it in thickened epidermis, as callosities, and finds it of the greatest value in scabies, psoriasis capitis and seborrhœa sicca.

Dr. Lassar, after using it in his polyclinic in over 400 cases, finds it invaluable when treatment of the deeper layers of the skin is required, as in psoriasis, herpes tonsurans, and horny thickening.

It has been largely prescribed for chapped hands, is preventive of the formation of crusts, lessens the secretion of pus, and is employed extensively by surgeons and gynecologists instead of vaseline, etc.

The most satisfactory results are recorded of it with chrysarobin in psoriasis (Lassar), tinea favosa (8 years' duration—Wende), herpes tonsurans, and pityriasis versicolor. With salicylic acid it has worked well in eczema. An ointment of it containing mercury produces no irritation, and its unprecedented usefulness on this account is obvious. It is especially useful for administering medicines for any reason contra-indicated by the stomach.

Owing to recent improvements in the manufacture the preparation now sent out by us does not require the addition of lard or anything else to make it of a proper consistence for ointments.

## PRICES—

1-lb. Tins	...	...	...	...	3/6 each.
7-lb. Tins	...	...	...	...	3/4 per lb.
Original case, containing 16 × 7-lb. Tins, 3/- "					

Subject to usual discount.

BURROUGHS, WELLCOME & Co.

SNOW HILL BUILDINGS, LONDON, E.C.



# WYLEYS' GELATINE COATED OVAL PILLS.

The only Gelatine Coated Oval Pills of ENGLISH MANUFACTURE in the Market. Special List of REDUCED PRICES on application.

**POWDERED DRUGS.** All ground in our own Mills, and of Guaranteed Purity.

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**CONCENTRATED INFUSIONS AND DECOCTIONS. GRANULAR EFFERVESCENT PREPARATIONS.**

**GELATINE COATED HORSE BALLS (PATENTED).**

Forwarded on application { PRICES CURRENT, LIST OF SPECIALITIES, PILL LIST (GELATINE OR PEARL COATED).

**WYLEYS & CO., COVENTRY.**

LONDON ADDRESS—1a BURY STREET, ST. MARY AXE, E.C.

# HAZELINE.

THE DISTILLATE FROM THE  
GREEN BARK  
OF THE HAMAMELIS VIRGINICA.

The drug Witch Hazel, though for many years extensively employed in the United States in various forms, has only recently been largely used in this country. We read in medical literature of its use by the Aborigines of America in the treatment of inflammatory and congested contusions, and as an application in bruises, swellings, and discharging sores; also as an internal remedy in consumption. Their method of preparation was simply a poultice of the Green Bark or Plant for external application, or a cold infusion internally.

The drug is becoming more and more popular with the medical profession, drug trade, and the general public every year. The form in which it is mostly used is that of the distillate from the Green Bark, and which, therefore, contains the volatile principles of the drug. These principles impart a pungent odour to the preparation, which is disagreeable to but few persons. If a little of it is exposed in a room it will diffuse its peculiar odour throughout the air—an evidence of its volatile properties.

This distillate was introduced here by us several years ago under the name of HAZELINE, and its merits have won for it the confidence of the medical profession as the best form for using Hamamelis Virginica in most of the cases in which it is prescribed. We shall be happy to supply a 4-oz. sample bottle to any reader of THE CHEMIST AND DRUGGIST who would like to experiment with it.

**BURROUGHS, WELLCOME & CO., MANUFACTURING CHEMISTS,**  
SNOW HILL BUILDINGS, LONDON, E.C.

# SAVORY & MOORE'S PEPTONISING PELLETS.

*These Pellets will be found the most Convenient, Portable, Inexpensive, and Efficacious Peptonising agent that can be procured.*

**CONVENIENT:**—Because no weighing, measuring, or addition is required. The Pellet is quickly soluble, and will keep much longer than any other preparation in the liquid or powdered form. Each Pellet weighs five grains, and will sufficiently peptonise for ordinary use a pint of milk in a quarter of an hour.

**PORTABLE:**—Because, being compressed, enough to peptonise several gallons of milk can conveniently be carried in the waistcoat pocket.

**EFFICACIOUS:**—Because of the rapidity and completeness of its action.

The Pellets are equally available for Peptonising Meat, Gruel, &c., &c.

*This is the only form yet introduced which does not require a large excess of Alkali, and the nauseous taste of fully peptonised milk as hitherto prepared is entirely avoided.*

FULL DIRECTIONS ACCOMPANY EACH PACKET.

**BOTTLES, 2/6.**

[2]

**SAVORY & MOORE, 143 NEW BOND ST., LONDON, W.**





ESTABLISHED 1859.

PRINCIPAL OFFICE, 42 CANNON STREET, LONDON, E.C.

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For Australasian subscribers the subsidiary journal THE CHEMIST AND  
DRUGGIST OF AUSTRALASIA is included.

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## PUBLISHER'S NOTICE.

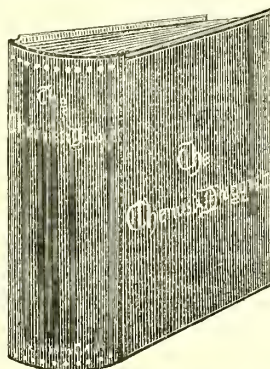
OUR next issue will contain very full information on educational matters—medical, pharmaceutical, and scientific—and will be circulated freely to the medical and scientific schools of the United Kingdom, as well as to all the hospitals therein. This issue offers a good opportunity for principals of schools making announcements regarding the courses of study which they provide. Publishers and makers and dealers in scientific apparatus and chemicals will find it to their advantage to make special announcements in this issue. Advertisements will be received not later than Wednesday next, the 15th instant.

POST-CARD COMPETITION NO. VI.—The answers to this competition have furnished a good selection of books useful for a chemist's reference library. Some little delay is necessary to get at the correct titles and prices of all the books named, but we hope to publish the list in a week or two.

THE COMMITTEE appointed by the British Pharmaceutical Conference on unofficial formulae commenced its duties the same day, or rather night. There is some mystery about the hour of meeting, but the secretary's office was closed soon after 10.30 P.M., and those who went to fetch their hats, &c., from the room shortly after midnight found the committee still sitting, with Mr. Martindale in the chair and Mr. Taylor acting as secretary. Some of the members are not very sanguine about the results, but meanwhile we understand the committee is not to aim too high; proprietors of

factory-made articles are to be allowed time to repent. The medical profession will hear about the formulary through the medical journals.

We append a sketch of the reading case which we are now supplying. It is in black cloth with gilt letters. In it a quarter's copies of THE CHEMIST AND DRUGGIST can



be conveniently kept. We sell it for 1s., delivered free to any City house (we cannot deliver beyond the City), or we send it by parcels post for 1s. 3d. We have been sold out of these during the week, but are now restocked.

**PRESCRIBING CHEMISTS.**—In the House of Commons on the 3rd inst. Sir T. Esmonde asked the Vice-President of the Committee of Council whether the Government were aware that numbers of chemists in London prescribed medicinally for all sorts of diseases; whether it was legal for chemists who had no medical or surgical degree to prescribe and make up medicines in many of which poisonous drugs were used; and whether the Government would take steps to put an end to this practice now that proper medical advice could be obtained for small fees.

Sir H. Holland in reply said: The Government have no special information upon the subject referred to in the first part of the question, though it is very probable that chemists are in the habit of prescribing medicinally to persons coming to their shops. As to the second part of the question I would refer the hon. member to the provisions of the Pharmacy Act, 1868, by which it is made unlawful for persons since 1868, unless registered under that Act, to retail, dispense, or compound the poisons referred to in the schedule of that Act, and in subsequent resolutions of the Pharmaceutical Society approved by the Privy Council. I have only to add that the Government have under consideration the question of further regulating the sale of poisons.

SIR HENRY E. ROSCOE will be president of the British Association at the Manchester meeting next year. In the following year the Association will meet in Bath. The British Association have had an invitation to hold their 1888 meeting in Sydney, N.S.W., but the distance and the time of year (January) proposed for the meeting have prevented the invitation being accepted. It is expected, however, that from forty to fifty members of the Association will attend the Australian centenary celebrations, and they are to be authorised to hold a supplementary meeting of the Association in Sydney, and another probably in Melbourne.

## DIARY FOR NEXT WEEK.

Tuesday, September 14.

Public sales of drysalteries, at the Commercial Sale Rooms, Mincing Lane, at 1 P.M.

Wednesday, September 15.

Public sales of spices, at the Commercial Sale Rooms, Mincing Lane, at noon.

Thursday, September 16.

Public sales of drugs, at the New Corn Exchange, Mark Lane, at 10.30 A.M.



## Metropolitan Reports.

**SUICIDE OF A MEDICAL MAN.**—Dr. W. Wynn Westcott, Deputy-coroner for Central Middlesex, held an inquiry on Saturday last at the Crowndale Hall, Crowndale Road, Camden Town, into the circumstances attending the death of Dr. Timothy Howard, whose family reside at Limerick, and who was found dead at 73 Drummond Street, Euston Square. Mr. Jeremiah Howard, of no occupation, who arrived in London on Friday evening, giving his address the Euston Hotel, identified the body as that of his brother, aged 23, who had come to England about two years since, believing that London was the best place to get a practice. He had received diplomas from the Dublin University. Witness had continually assisted him with money, and last saw him alive about a fortnight ago, when on a visit to London. He was then very despondent at not getting a practice, and stated that he was in the habit of taking opium. Ellen Gray stated that on Friday fortnight Dr. Howard took a room on the parlour floor. She had frequently seen him taking pills out of a small tin box. On Thursday he asked her to get some beer, and she fetched some stout and bitter. About two hours afterwards she took him some sandwiches on a plate, but she could not rouse him, and she called another lodger, Mrs. Lewis, who said he was dead. Inspector Moon, of the S Division, stated that at three on Thursday afternoon he was called to the house. Under the pillow was a 2-oz. bottle marked "Prussic acid," containing about two drops, and in a bag under some clothes he found two bottles of chloroform, and a 2-oz. bottle of strychnine two-thirds full. There was also an empty box marked "Pearl-coated pills." Dr. Maughan, 25 Devonshire Street, Portland Place, assistant divisional surgeon to the police, stated that when he saw the deceased the jaw was fixed and the face blanched. Putting his nose to the mouth he distinctly smelt prussic acid. He had since made a post-mortem examination, and the contents of the stomach and surroundings showed that death had resulted from poisoning by prussic acid. In answer to a question by the coroner, the witness said that 45 drops were sufficient to kill a person, but the bottle that the deceased had drunk from contained about 480 drops, so that death must have been almost instantaneous. The brother recalled said he had received a letter from his brother, written in a desponding manner, in which he stated the difficulties he had met in getting an assistant, and the money it had cost him at the several agencies, and concluded that what would become of him "God only knows." The jury returned a verdict "That deceased died from the effects of poisoning from prussic acid, and that he had killed himself when suffering from unsound mind."

**THE ALLEGED ATTEMPT TO POISON A WIFE.**—On Saturday at the Worship Street Police Court, John Reynolds, a barman, was brought up on remand on a charge of having administered to his wife an irritant poison with the intention of murdering her. Evidence was given as to the purchase of the poison (sulphate of copper) by a potman named Edward Passmore. The prisoner had asked him to get it. Mr. William Brighty Notcutt, chemist and druggist, 32 Aldenham Road, Mile End, deposed that on Thursday, August 19, at about 9.30 A.M., he saw Mrs. Reynolds in his shop, and she produced to him a teacup, in which he found about two tablespoonfuls of a thick liquid, and adhering to the sides of the cup were some crystals of "bluestone," which was the common name for sulphate of copper. He put some in his mouth, and it made his tongue rough. He also subjected it to tests, and he found it to be sulphate of copper. Cross-examined: Bluestone was used for various purposes—wheat dressing, veterinary practice, &c. He was not aware if it was used in brewing, for assisting in the fermentation of beer. Should say sulphate of copper was not an abortive. Taylor's book on poisons was an authority he was acquainted with.—You say that 1 drachm of sulphate of copper, if retained, would cause death. Can you refer me to any authority?—Not at this moment.—If Taylor says that anything less than 5 drachms would be insufficient to cause death, do you disagree with him?—I should be sorry to try the effect.—I suppose the first effect of taking it is sickness?—Yes.—

Which would remove the poison from the stomach?—It would not remove the effect. After some other evidence Mr. Sims asked for the committal of the prisoner on the charge of attempting to murder his wife by administering poison to her. Mr. Bushby, the magistrate, fully committed the prisoner for trial at the Central Criminal Court, bail being refused.

**SINGULAR DEATH OF A CHEMIST.**—Mr. F. S. Langham, the coroner for the Duchy of Lancaster, held an inquiry on Thursday 2nd inst., at the Five Bells Tavern, Enfield, into the circumstances attending the death of Hugh Munro, aged 35, a chemist and druggist, of Chase-side, Enfield, whose death is alleged to have been caused by his being knocked down and assaulted on Battle Bridge, York Road, King's Cross, on the Monday evening previous, by a man named James Taylor. The deceased's wife gave evidence, from which it appeared that he had lately been subject to epileptic fits. On Monday he went to London, about 8 o'clock in the morning, and returned on Tuesday, about 3.30 P.M. On his return he said he had spent a dreadful night. She asked where, but he said he would tell her by-and-by. He did not complain of any ill-usage. He did not seem to her to be ill until she saw him in a fit a few minutes after he came in. He was sitting in a chair and made some noise, when witness ran in, and found him in a fit. Witness sent for Dr. Collyer, who came in a few minutes, and pronounced deceased to be dead. Other evidence showed that deceased was at Battle Bridge, St. Pancras, at about half-past nine on the night in question, asking for a cab to take him to Barnsbury; upon the arrival of one, the cabman said that as he was drunk he would not take him unless he was paid first. He gave the cabman some money, and the man Taylor who was in the crowd said, "I will give you a hand to get in," and began to help him, but before deceased had got in, Taylor put his hand in the gentleman's trousers pocket and robbed him; subsequently he seized deceased by the throat, and threw him against the wall of the bridge, his head striking the wall, then caught hold of him by the back of the neck, and threw him violently upon his face; afterwards he was helped into the cab, which drove off. Medical evidence showed the only mark of violence on the body was that of a cut on the chin, which might have been produced by a fall, and that the death of the deceased had been caused by epilepsy, but whether it had been accelerated by injuries received in the robbery there was nothing clearly to show. The Coroner having summed up the case, the jury returned a verdict of "Death from epilepsy, but whether it was accelerated by injuries there was not sufficient evidence to show."

**PARAFFIN-LAMP EXPLOSION.**—On Friday Dr. Wynn Westcott held an inquest at the Providence Hall on the body of Alice Hill, aged 15 years, of Hampden Street, Paddington, who had met her death through the explosion of a paraffin lamp. The lamp was alight all night, and the following morning the deceased got out of bed to put out the light, turning down the wick and blowing down the chimney. The flame caught the oil, which exploded, smashing the lamp and setting fire to deceased's night-dress. She afterwards died in St. Mary's Hospital from congestion of the lungs.

**CALOMEL POWDERS.**—On Friday last Dr. Diplock opened an inquiry at St. Jude's Mission Room, Lancelfield Street, Queen's Park, Kensal Green, respecting the death of an infant fourteen months old, named Emily Jenkins. Elizabeth Jenkins, the mother, said she was the wife of a labourer, and lived at 16 Beethoven Street, Kensal Green. On Monday morning the child was taken ill with diarrhoea and sickness, and witness went to a chemist at Kilburn. Either the chemist or his assistant, she did not know which, gave her a powder and some lime-water. The infant got worse, and on Wednesday she took it to a doctor. The deceased died the same evening. Dr. C. H. Roberts, 60 Herries Street, Queen's Park, deposed that the child was dying when brought to him; he was only surprised that it had lived so long. A post-mortem examination revealed that death was due to inflammation of the bowels. The other organs were quite healthy. The Coroner: Have you any idea what the powder was? Witness: Calomel, I think it was. The Coroner: Would that be a proper thing to give with the bowels in that condition? Witness (warmly): Certainly not; very improper. The Coroner: Would that accelerate or increase the attack? Witness: Yes, I have no doubt. It would act as



a noxious substance. The Coroner: Do you consider the death was accelerated by the powder? Witness: I have no doubt about it. It was an ordinary case, and the child might have been living now. As the chemist was not in attendance, the Coroner, after commenting severely on the circumstances, adjourned the inquest.—The inquest was resumed on Wednesday, when Mr. Walter Edward Hartley, chemist and druggist, 34 Canterbury Road, Kilburn, appeared for examination. After being cautioned he stated that on August 31 deceased's mother called at his shop and said her infant was suffering from diarrhoea. He gave her a powder and some lime-water. The powder consisted of calomel and a little sugar. Witness inquired as to the symptoms and the age of the child.—The Coroner: And did you recommend the lime-water, or did she ask for that?—Witness: I recommended the lime-water, knowing it was a very good thing for the sickness. I have given hundreds of those powders before, and there has been no ill effect. The small amount of calomel could not have been injurious. The jury returned a verdict of "Death from muco-enteritis," adding, "We are of opinion that no blame attaches to the chemist who sold the powder."

**A SAD PHARMACEUTICAL CAREER.**—On Tuesday Mr. A. Braxton Hicks, deputy coroner, held an inquiry at St. Clement's Vestry Hall, Clare Market, concerning the death of Benjamin Jones, aged 33, a chemist, late of 3 The Promenade, Ealing Dean, near Acton, who was alleged to have committed suicide by opening a vein in his arm. From the evidence of a brother of the deceased it appeared that ever since boyhood he had given way to drink, and owing to his intemperate habits he could not keep a situation for any length of time. Mr. Payne, manager of a lodging-house in Southampton Street, Strand, said that on the morning of Sunday, in consequence of a communication made to him by the chambermaid, he went to the room occupied by the deceased, and getting no answer to his knocks, he went inside, and found the deceased lying on the bed. There was much blood about, and one of the deceased's arms was hanging over the side of the bed. Police Constable George Harris said he was called in, and he found a medical scalpel in the bed and another on the floor. Dr. Watts gave evidence that the deceased died from loss of blood, consequent upon the opening of one of the main arteries in the left fore-arm. The wound was evidently self-inflicted. The jury found that the deceased committed suicide while temporarily of unsound mind.

**THE ANNUAL REPORT** of Mr. C. E. Cassal, F.C.S., public analyst for South Kensington, which has just been sent in to the Vestry Board, deals chiefly with milk samples, of which 218 had been submitted to him. Many of these were of bad quality, and prosecutions had been instituted in 51 cases, and fines inflicted in 42. Mr. Cassal comments on the difference in the milk standards adopted by public analysts and those of Somerset House, and believes that many alterations and a considerable extension of the law are required in order to make it more efficient, and to extend it to other articles than foods and drugs.

**CARBOLIC ACID POISONING.**—On Tuesday Mr. Carttar, West Kent Coroner, held an inquest at the Prince of Wales, Walpole Road, Deptford, on the body of William Ernest Hudson, aged two years. The evidence showed that the child had taken a bottle containing a pennyworth of carbolic acid from the mantel-shelf and drank about a third of the contents. Mr. H. W. Payne Makeham, M.R.C.S., &c., 330 New Cross Road, S.E., stated that the child was brought to him, but it was in a hopeless condition. The carbolic acid was the impure variety, which was more dangerous than the pure acid. It was largely used for disinfecting purposes, but did not come under the regulations of the Poisons Act, although more dangerous than many that did, and there were no restrictions upon its sale. The jury returned a verdict of "Death from accidentally swallowing carbolic acid."

**SPURIOUS "PEARS' SOAP" IN JAPAN.**—A spurious imitation of Pears' soap was made in quantity at Osaka some time ago and sold in the shops throughout Japan under counterfeit labels. On representation being made to the government authorities at Osaka and Hiôgô this imitation was suppressed, and the counterfeit labels destroyed.

## Provincial Reports.

*Items of news, and newspapers containing matters of interest to the trade, sent to the Editor, will much oblige.*

### ACCRINGTON.

**THROWING PHYSIC TO THE DOGS.**—Three children about seven years of age have been poisoned in a singular way at Accrington. It appears that they drank from a bottle containing a preparation of belladonna, which they found in an ashpit. One of the children is dangerously ill, but the other two are not so seriously affected.

### ASTON.

**SUPPOSED SUICIDE WITH PRUSSIC ACID.**—On Friday last the dead body of a middle-aged man was found near the boating pool at Aston Lower Grounds. Close to the spot where the remains lay a bottle which had held prussic acid was found.

**APERIENTS AND DIARRHOEA.**—Mr. Joseph Ansell (deputy-coroner for Central Warwickshire) held an inquest last Friday at the Vine Inn, Lichfield Road, Aston, concerning the death of William Goodhead, aged two years, who died under the following circumstances. The deceased had been suffering from diarrhoea, and his mother gave him some syrup of rhubarb and castor oil. As the child did not improve, Dr. Fairley was called in, and prescribed for him, but he gradually sank and died on the Tuesday. Dr. Fairley said that death resulted from diarrhoea, and the administration of castor oil and syrup of rhubarb would rather tend to accelerate its death than otherwise. In summing up, the Coroner commented severely on the mother's conduct in not calling in a doctor earlier. The jury returned a verdict of "Death from natural causes," with a word of caution to the mother.

### BATH.

**SWALLOWING CARBOLIC ACID.**—On September 1 a little boy named Thomas Harding, of 5 Kingsmead Street, accidentally swallowed a small quantity of carbolic acid. He was conveyed to the Royal United Hospital, where means were taken to effect his recovery.

### BIRMINGHAM.

#### THE EXHIBITION AT BINGLEY HALL.

FREQUENT reference has been made in this Journal to the Exhibition of Local Industries which has been held at Bingley Hall and has attracted many visitors during the sessions of the British Pharmaceutical Conference and the British Association, and which will be open, we understand, for a few weeks longer.

The exhibition is a remarkable one, presenting, according to Birmingham authorities themselves, a miniature picture of the great hardware metropolis at work. There are no fewer than forty-five stands where work is shown in actual progress. Neither these nor the exhibits of finished work, however, come within the scope of our report, and naturally the display of chemical products is generally overshadowed. We noticed only some fine pharmaceutical chemicals by Messrs. Newton, Robinson & Co., of the Faraday Works; some acids and sulphates of soda and copper by Messrs. Peyton & Son; and the borax and its compounds put up by the Patent Borax Company, which could be said to belong to the chemical trade strictly. Thanks, however, to Messrs. Southall Bros. & Barclay pharmacy was high in the ascendant. In harmony with the scheme of representing Old Birmingham, this firm had worked out the idea of an ancient alchemist's laboratory by the side of a modern pharmacy, and it is certainly correct to say that this pair of pictures became the most popular attraction to the public. The alchemist's laboratory is modelled from the design which Mr. Irving had drawn for the first scene in "Faust," and which he lent to Messrs. Southall for the purpose of this exhibition. It is a vaulted chamber of gloomy appearance, furnished with



the most ancient apparatus and fittings obtainable. A human skeleton surveys the scene from the back, and skulls, skeletons of storks, and other grim objects are disposed about the room. A stuffed crocodile stands in front of the establishment, and serves as a sign. Snakes, a furnace, crucibles, mufles, old mortars, and strangely-shaped lamps are placed about in more or less picturesque confusion. Somewhat incongruously a barber-surgeon's diploma, dated 1734, hangs on one wall, and opposite it is a shelf containing various ancient volumes. On the table lies an old black-letter book, open; and at a certain hour the alchemist, a strange, bent old figure, with wrinkled face and snowy locks, seats himself at the table and pores over the volume. Mr. George H. Bernasconi, the artist who arranged the scene, fills this part to perfection. With his 'prentice (Mr. William Heal) Mr. Bernasconi performs various simple experiments, all resulting in some sort of blaze. The drawback to the scene is the singular lack of foreground which makes it almost impossible for more than about a score of persons to see what is going on at one time. Among those who contributed to the furniture of this laboratory were Mr. Lawson Tait, F.R.C.S., L.L.D. (Birmingham), Professors Redwood, Windle (Queen's College), and Bridge (Mason's College), Mr. Innes Griffin, M.R.C.S. (Barbury), Dr. Evans (Dublin), Mrs. R. W. Dale (Birmingham), Messrs. Lucas, Prosser, and Whitehouse (Birmingham), Reynolds (Leeds), Groves (Weymouth), Corbyn, Messer, and Godfrey & Cooke (London), Mawson & Swan (Newcastle-on-Tyne), Cubley (Sheffield), Lawrence (Knaresborough), Wood (Brentford), Mason (Bromsgrove), and Schofield (Morpeth). Advantage has been skilfully taken of the opportunity to introduce some old friends under new labels, or rather some new friends under old labels, and supply them to the public at remunerative prices. Two or three specimen labels will indicate the character of the business carried on, though it may be added that ancient bottles have been manufactured expressly for the occasion.

### ENGLISHE LAVENDERE WATER, OF SURPASSINGE SWEETNESSE ANDE FRAGRANCE.

This Spirit is distillede bye ye arte offe ye Alchymiste frome Floweres growne oulic inne Englande, which doe greatlie excelle alle whiche be producede by Foreigne Countries.

Itte is ye moste healthfulle offe alle Perfumes; a pleasure ande a comforte alike toe theye whiche be whole ande theye whiche be sicke.

Distillede att ye Laboratorie offe C. & W. & W. Southall,  
17 Bull Streete, Birmingham.

Ande solde att Southall's Annciente Pharmacye in ye Bingley Halle.

### A MARVELLOUSSE SMELLINGE BOTTEL

Which cureth Headache and Faintnesse, is goode against Swooning ande ye Fallinge Sicknesse. Bye smellinge att ye flaske, suche as be troubeled with coldes ande thicknesse in ye passages offe ye heade shalle finde greate benefitte.

Thes bottels are usede by ye Ladies offe ye Courte ande manie offe ye Nobilitie.

Preparede att ye Laboratorie offe C. & W. & W. Southall,  
17 Bull Streete, Birmingham.

Ande solde att Ye Annciente Pharmacye inne ye Bingley Halle.

### YE TRUE LOVER'S NECKLACE.

A charme wherebye ye absente ones shalle be kepte in minde. Itte diffuseth a moste delightfull Perfume, soe givinge greate pleasure ande comforte toe ye wearer.

Preparede att ye Laboratorie offe C. & W. & W. Southall,  
17 Bull Streete, Birmingham.

Ande solde att ye Annciente Pharmacye, Bingley Halle.

The necklace is a string of scented woods (orris root, &c.) cut in small pieces and interspersed with Indian prayer-beads and other coloured bits of drugs. Among other articles on sale are "Ye Love Philtre Bouquet," "Secrete Inke," "Bal-

same offe Sulphure," "Fryar's Balsam, Compounded offe rare Gummes and Balsames from ye Oriente, most excellent fore Woundes ande Bleedinges, &c.," "Foure Thieves Vinegar," "Balsame offe Life," "Ye True Mithridate, or Democrates' Confectione," "Elixire offe Jesuites' Barke," and others.

The modern pharmacy next door is a spruce and elegant specimen of shop-fitting. It is a small double-fronted shop, and a certain amount of business is being carried on there also. Pindar's and Cocking's pill machines, some filters, a compressed tablet apparatus, salt-water aquaria, bottles of compressed carbonic acid, and other modern inventions are exhibited, as also a handsome case containing the chemical constituents of cod-liver oil. One window is handsomely set out with specimen chemicals, the other is utilised for the display of perfumery and proprietary articles. The shop has been fitted by Messrs. B. Clarke & Son (Limited), Birmingham, and the York Glass Company. Messrs. Southall also show and illustrate the use of a large variety of scientific apparatus. Messrs. W. & T. Avery, Digbeth, Birmingham, amongst other weighing machines, exhibit several of an automatic form for weighing substances of a granular or pulverulent nature. These machines are fitted with a cylinder for holding the material to be weighed, under it an empty package is placed, a lever touched, and then the material flows out until the desired quantity gets into the packet. This at once turns the scale, which action also closes the mouth of the cylinder. A double machine is also made and fitted with patent screw for feeding pulverised and lumpy materials, which are apt to clog. This machine has the advantage of enabling the operator to supply one packet whilst another is filling. The machine is very ingenious, and is calculated to save a great deal of labour and time, and should be useful to druggists who have a large packet trade. Tangye's hydraulic "Dentist" press, which is exhibited along with other hydraulic machinery by Tangyes (Limited), of Cornwall Works, consists of a strong cylinder and head united by steel screwed pillars, ram, gun-metal pressure-pump, stop-valve, and hand-lever, and, although occupying very little space, it has a power amounting to 20 tons. The press can be used for tinctures. Mr. W. F. Smallman, Crown Works, West Bromwich, has a well-assorted exhibit of oils and varnishes, and Maud's patent filler is exhibited by Mr. James Yates, 40 Coleshill Street, Birmingham.

### BRIGHTON.

THE CHLORAL BOTTLE.—The Deputy Borough Coroner (Mr. A. Freeman Gell) held an inquest last Thursday afternoon at the Marlborough Hotel, Princes Street, Brighton, touching the death of Clementina Gibson, who died under circumstances which are detailed in what follows. Hope Gibson, son of the deceased, residing in Leven, Fifeshire, identified the body as that of his mother, whom he last saw on September 27 last year. She was, many years ago, in the habit of taking chloroform, which was ordered by the doctors. Kate Fulbrook, in service at 6 Pavilion Parade, said the deceased came there on Wednesday August 25, and on Monday sent her for syrup of chloral, which she obtained at Messrs. Savage & Adams's. Deceased afterwards sent her for another bottle, but her mistress would not allow her to go. Subsequently she found the bottle quite empty. Mr. Scatiff, surgeon, Brighton, said he had been attending the deceased for nearly two years. She had been suffering from constant sickness, and sleeplessness, which might have been caused by chloral or alcoholic stimulants. On Monday witness went to see deceased, and found Mr. Black attending upon her. She appeared to rally and seemed to have entirely got over it, but she expired from failure of the heart's action on the following day. Mr. John Potter, another medical man, gave corroborative evidence. Mr. Adams, of the firm of Messrs. Savage & Adams, said the second witness came to the shop and asked for a large bottle of syrup of chloral. Witness asked whom it was for, the girl said that the deceased had been in the habit of taking it, and he gave her a two-oz. bottle. He told her to be careful, and explained the nature of the substance. The jury, after a short deliberation, returned a verdict that the deceased died from failure of the heart's action, accelerated by alcohol and chloral.



## CHELMSFORD.

**POISONING BY NITRIC ACID.**—On September 2, at the Chelmsford Infirmary, Mr. C. C. Lewis, the coroner for Essex, held an inquest concerning the death of Ruth Cordelia Powell, aged twenty-two, who committed suicide by taking nitric acid. The deceased had been a pupil teacher at the Chelmsford British Schools, but about nine weeks ago went to fill another position at Maidenhead, the duties of which proved too arduous for her. She became much depressed at what she termed her failure there, and relinquishing the post came back to Chelmsford for the harvest holidays. Being in a very depressed state of mind, Miss Powell was carefully watched by her relatives, and everything was done to prevent her from falling into a morbid state. On August 30, during dinner time, it was noticed that she seemed to have shaken off her depression; but she must have at this time been contemplating suicide, for she had in her pocket a bottle of nitric acid, for which she had sent a school girl in the morning. After dinner she swallowed the acid, and threw the bottle out of the window. On being discovered, she was immediately attended to by Dr. Strunt, and taken to the Infirmary, where she died at seven o'clock the next morning.

## DERBY.

**POISONOUS GINGER BEER.**—An inquest was held at Derby on Tuesday on the body of a middle-aged woman named Devans, who on Monday went on a trip to Lancashire. She returned home at night apparently in good health and went to bed, but soon after became very ill, and on her husband returning from fetching the doctor he found her dead. She had partaken freely of ginger beer, and in the opinion of the doctor she died of spasms of the heart, induced by the action of the ginger beer. A verdict to that effect was returned.

## DUDLEY.

**GOLD FOR SILVER.**—On Monday before the Mayor (Alderman Walker), Mr. W. Greenway and Mr. J. Russell, John Henry Calvert, 45, chemist, was fined 10s. and costs for stealing 1s. belonging to his employer, Mr. W. J. Ince. On Friday last defendant received a shilling from a customer and gave the proper change, but retained the coin in his hand. When charged with the theft he at first denied it, but afterwards asked that nothing might be said, and threw the shilling into the drawer.

## GOOLE.

**A CARELESS MOTHER.**—On Monday Dr. Grabham, coroner, held an inquest at Goole touching the death of Herbert, aged nine weeks, son of Henry Portington, beer-house keeper, Railway Tavern, Bootferry Road, Goole. Eliza Portington, mother of the child, stated that she sent her servant on Saturday evening to a chemist for a pennyworth of Godfrey's cordial, the child having been cross all the day. She gave the girl an old bottle which was labelled "Poison." There was a brown-coated substance inside the bottle, which she did not wash off. The bottle was brought by the girl, and she gave the child half-a-teaspoonful of the contents, which she afterwards found to be laudanum: and in evidence the servant stated that she misunderstood her mistress's order, and asked for laudanum. Mr. J. T. Bentley, chemist, said he could not remember the last witness coming to his shop, as so many people came for laudanum. He sold pints of laudanum in a week. Dr. R. Cathcart Bruce proved that he had attended the child, and that it died from an overdose of opium. The Coroner, in summing up, agreed with some remarks made by Dr. Bruce regarding the sale of laudanum. Chemists, he said, could sell a bucketful of it if it were demanded, inasmuch as there were no restrictions by law to prevent them selling. Most of the patent medicines also contained opium or laudanum. The jury returned a verdict "That the deceased died from misadventure, viz., by an overdose of laudanum administered to it by its mother in mistake for Godfrey's cordial."

## HALIFAX.

**HONESTY REWARDED.**—On August 29, as Mr. William Toone, chemist, of Halifax, was driving down Moldgreen, he lost a valuable 18-carat gold ring set with diamonds. A report was at once made at the police station, and bills were printed and circulated offering a reward of 2*l.* to the finder of the ring. A few days later a boy named James Arthur Kaye, of Birks Hill, Lockwood, went to the police station with the ring, which he had found on the previous Sunday. The ring was identified by the owner, and the promised reward given to the lucky finder. The ring was valued at 53*l.*

## HANLEY.

**DEATH FROM DRINKING AMMONIA.**—Mr. E. A. Paine, deputy-coroner, on Monday held an inquest at the Town Hall on the body of Sarah Taylor, wife of a potter living in Newlands Street, who died on Friday from the effects of drinking a quantity of ammonia. The evidence was to the effect that lately deceased's mind appeared to give way, and on Friday morning she was allowed to go out alone. She then purchased six pennyworth of liquid ammonia, which she drank on her return home. The jury returned a verdict of "Suicide whilst temporarily insane."

## LIVERPOOL.

**TRAP ACCIDENT.**—Last week as Mr. Edwardson, mineral-water manufacturer, Widnes, was driving with his wife near Prescott, the conveyance upset. He injured his head badly and broke an ankle. He was carried home in an unconscious state, attended by Dr. McCambridge, and did not revive till the next day. Mrs. Edwardson was severely shaken, but had no bones broken.

**DRUGGIST'S FAILURE.**—Mr. Vincent Strawson, whose sale of stock and fixtures at his original shop, 35 Islington, "in consequence of Corporation improvements" was lately noticed in our columns, has had a receiving order granted against him in respect both of his chemist's business at 178 Islington, formerly carried on by Mr. Thos. Smyth, and of the soda-water concern at 163 Islington, where he traded in partnership with his brother.

**AN APPEAL** was made at the Liverpool City Assizes on Thursday last by Messrs. Hughes, lard and oil refiners, against a recent decision by the Stipendiary Magistrate, fining them for carrying on the business of tallow-melting, and thereby creating a nuisance. It has since transpired that it was fat and not tallow which they melted, and on that ground they appealed. The Recorder sustained the appeal without costs.

## NORTHWICH.

**SYSTEMATIC ROBBERIES AT A CHEMICAL WORKS.**—For several months sums of money to a considerable amount have been missed from the offices of the Winnington Chemical Works, Northwich. Suspicion fell on several of the forty clerks employed, but proof was not forthcoming. On Friday week it was accidentally discovered that Lightfoot, an office boy, had a master key to all desks containing valuables. He admitted being the thief. On Saturday he was remanded to the sessions, bail being accepted.

## PLYMOUTH.

**CHEMISTRY CLASSES.**—The results of the examinations held by the Science and Art Department, South Kensington, which have been received are very satisfactory to the numerous pharmaceutical assistants and apprentices who make up the bulk of the classes. In advanced and elementary inorganic chemistry eleven first-class theoretical and fourteen first-class practical certificates have been gained. In organic chemistry, five first-class advanced and three first-class elementary have been received.

## WEST BROMWICH.

**A THIRSTY LABOURER.**—On Saturday last James Mayall, 38, labourer, was engaged at Spon Lane canal basin unload-



ing a boat laden with casks containing a poisonous liquid. While conveying the casks to a neighbouring brewery he tapped one of them and drank a quantity of the liquid, on the supposition that it was porter. He was afterwards taken to the West Bromwich District Hospital.

#### WHITBY.

**DEATH IN THE POT.**—A Whitby family, going by the extraordinary name of Corpse, have narrowly escaped death through eating a quantity of unwholesome brawn. The meat was purchased of a butcher in the local shambles, and the whole family partook of it for breakfast. They were very soon afterwards seized with violent pains in the stomach, intense cramp in the abdomen, and excessive and protracted retching. It was evident that they were suffering from virulent poisoning, and medical aid was at once called in. Dr. Johnson Herbert, the medical officer of health under the Local Board, attended, and administered some emetics, and adopted other means to alleviate their sufferings. The older members of the family gradually rallied, but for some time the lives of two of the children were despaired of. A portion of the unconsumed brawn has been forwarded to Dr. Scattergood, Leeds, for analysis.

#### WORCESTER.

**FIRE AT AN OIL AND COLOUR SHOP.**—Early on Monday morning a fire was discovered on the premises of Mr. Cutler, oil and colour dealer, St. Swithin Street. Mr. Sommers (the chief constable) and a number of his officers broke into the shop, and the fire was found to be in a store-room at the back. By using respirators the police were able to get into the suffocating smoke and use the extinguishers. The fire did not injure the building, although it had broken out in three different parts of the room. The timely use of the extinguishers prevented a serious conflagration.

#### SCOTLAND.

##### ALEXANDRIA, DUMBARTONSHIRE.

A SEAMAN, named William Smith, who had been staying for two days at the Albert Hotel, died on Friday morning, August 27, from the effects of laudanum taken during Wednesday night. He was found in his room in an unconscious state on Thursday afternoon. Medical assistance was obtained and the stomach-pump applied. The remedial measures adopted restored him to a partial consciousness, but he ultimately succumbed to the effects of the drug.

##### EDINBURGH.

MR. J. C. POTTAGE, Edinburgh, presided at the annual meeting of the "Homoeopathic Pharmaceutical Association of Great Britain," which was held on August 24 at Cheltenham. In his presidential address Mr. Pottage treated of "The past, present, and future position of Pharmacy." He referred specially to the desirability of immediate and conjoint action being taken by the pharmacists of this country to protect their interests by obtaining the introduction of a clause into the Pharmacy Act making it unlawful for any but registered chemists to sell articles of a remedial nature.

**MYSTERIOUS POISONING CASE.**—At Edinburgh, on August 25, within a week after starting on their wedding tour from Carlisle, the bride of Mr. John R. Lawson, of Botcherby, near Carlisle, died in Edinburgh from the effects of poison partaken of at the wedding breakfast at the house of their aunt, Mrs. Lawson, in Spencer Street, Carlisle. The wedding party numbered about sixteen persons, twelve of whom were taken more or less seriously ill subsequent to the breakfast, the symptoms being those of some irritant poison. After the breakfast the newly-married couple proceeded to Edinburgh, and after their arrival they went out for a walk. While walking they were both seized with illness, which, in the case of the bride especially, soon became alarming in its symptoms. They were attended by Dr. Carmichael and Dr. Affleck, and two nurses were engaged, who attended to the patients night and day. Mr. Lawson began to improve, but Mrs. Lawson's condition was bad from the first, and she showed no sign of improvement, but sank, and died on Wednesday evening. The nature of the poison, and how it was introduced, are at present mysteries. The symptoms are said to have not been such as to suggest metallic poisoning,

and there is an idea that some of the food was in so high a condition as to generate poison. Again, however, it is stated that one of the ladies at the breakfast did not touch any of the jellies, and she has not been taken ill. In the vomited matter Dr. Carmichael was unable to discover any poisonous substance. It certainly did not contain any metallic poison. Drs. Barnes and McDougall, Carlisle, who have been attending several of the patients, have drawn up a report on the circumstances, and it, along with samples of the various kinds of foods supplied at the breakfast and the portions of vomit collected, have been forwarded to Dr. T. H. Walker, Newcastle-on-Tyne, who is analyst for the city of Carlisle. Dr. Carmichael, who attended Mr. and Mrs. Lawson in Edinburgh, has had some experience in poisoning cases. It was he who was in attendance on Mrs. Chantrelle when she was poisoned by her husband, and he was the first to suspect that she had been the victim of foul play. We learn that Dr. T. H. Walker, Newcastle, has completed his analysis of the various articles of food which were used at the wedding breakfast. He has found no mineral or organic poison in them. He has applied to the Secretary of State for permission to make experiments on animals with the extracts in order to ascertain whether they contain ptomaines.

**BUSINESS CHANGES.**—The business of Messrs. Macfarlane & Co., 30 Bristo Street, has been disposed of to Messrs. Simpson & Co.; and that of the late Mr. W. R. Pirie, 65 Dalry Road, has also changed hands, the purchaser being said to be Mr. A. Clark, assistant to Mr. G. H. Laird, Queensferry Street.

**THE DEATH IS ANNOUNCED** of Francis Walker Moinet, M.D., F.R.C.P.E., at 11 London Street, Edinburgh, on the 6th inst. Dr. Moinet was an extra-mural lecturer on materia medica in the Edinburgh Medical School, and editor of the last edition of Dr. Scoresby-Jackson's "Note-book of materia medica." Some years ago his classes were attended by pharmaceutical students, and he contributed, at various times, papers to the evening meetings of the North British Branch of the Pharmaceutical Society.

**SALE OF POISONS.**—A correspondence is going on in a prominent local paper regarding the sale of poisons. The initiator of it asked, "Why should any fellow, even unknown to the seller, be able to go into a chemical apparatus maker's shop and get such deadly poisons as arsenic, prussic acid, &c., merely by asking for them, as I have repeatedly done myself? and it has struck me, as it would any mortal being, that there is something much worse here for the chemist to swallow than a pill." Following this there has been quite a hurricane of statements *pro* and *con*. There should be no difficulty in "spotting" the offenders, for apparatus makers in Edinburgh do not number more than half a dozen.

**THE ROYAL VISIT.**—Pharmacy was not behind other callings in adding to the possessions of the Queen during her late visit. Mr. T. Fairgrieve, chemist, 46 Clerk Street, sent her a bottle of his extract of lavender, and has received a gracious note of thanks for it.

##### KILMARNOCK.

JOHN LAUGHLAND, residing at 23 Clark Street, died on Sunday 29th ult. from the effects of laudanum taken the previous evening, with, it is supposed, suicidal intent.

**THE WISCONSIN STATE PHARMACEUTICAL ASSOCIATION** closed a very successful session at Fond du Lac on August 12. Milwaukee was chosen as the place of the next meeting, and Mr. F. M. Givens, Fond du Lac, was elected President. Amongst the attractions of the programme of this year's meeting were races for fat and lean men, in the course of which one of the members had the misfortune to fall and break his arm.

**THE ELIXIR OF LIFE.**—According to Dr. Burggräve, of the University of Ghent, the great panacea for all ills is common salt. According to his theory, salt is the great regulating agent. If the blood be too rich, salt will clarify it; if it be too poor, salt will strengthen it and furnish it with the necessary elements. He estimates that the quantity of salt which every adult in ordinary health should consume daily is two-thirds of an ounce, and he goes the length of saying that if everybody would only take salt, centenarians would become almost as common as new-born babes. What has become of all the centenarians?



## British Pharmaceutical Conference.

BIRMINGHAM, AUGUST 31 AND SEPTEMBER 1.

(Conclusion of Report.)

### A FALSE PAREIRA BRAVA.

BY WILLIAM KIRKBY, F.R.M.S.

IT is to Daniel Hanbury that we are indebted for our knowledge of the true botanical source of Pareira Brava. In his paper published in 1873 he first showed that it is produced by *Chondrodendron tomentosum*, and at the same time indicated the differences between it and the substitutes then in the market.

The substances which are stated to have been sold in place of the root of *Chondrodendron* at different times appear to be as follows: the root of *Cissampelos Pareira*, a bitter false Pareira Brava, and an inert false Pareira Brava. Besides these there are the white and yellow Pareira Bravas. The stems of *Chondrodendron* have also been largely imported and put into the market in place of the root.

In February last Mr. E. M. Holmes, of the Pharmaceutical Society's museum, sent me a specimen of a drug which had appeared in commerce as Pareira Brava, being imported from West Africa.

Before bringing this drug before your notice, it is necessary that I should describe the microscopical characters of the true drug; the more especially as this has not been done, although Mr. John Moss has fully described the stem (*Pharm. Journ.* [3] vi. 702).

The growth of the secondary wood of the *Menispermaceæ* is abnormal in a very remarkable degree. In the young plant surrounding the pith is a normal ring of wood with, relatively, broad medullary rays and narrow vascular bundles. Each strand of soft bast in these primary bundles is limited on the outside by a crescent-shaped layer of hard bast fibres. Without there is found the cortex, consisting of several rows of cortical parenchyma and the epidermis. In the course of one or two years the inner rows of the cortical parenchyma becomes meristematic; a layer of sclerenchyma is formed on the outside of this cambium region and another on the inside. Between the two sclerenchymatous layers the bundles of new wood are formed. After a time this process is repeated.

In a section of the stem of *Chondrodendron tomentosum* having a diameter of 22mm., the pith measures 1.5mm., and occupies a position not quite central. Surrounding this are two, three, or four well-defined rings of woody tissue of variable thickness. These rings are divided from each other by undulating lines of a slightly different colour. The whole is enclosed by a narrow cortical portion. The pith is composed chiefly of polyhedral thin-walled cells; in the centre is a number of strongly thickened sclerotic cells, which are either isolated or, more generally, in groups, united so as to form strands; a small quantity of starch is present; numerous minute crystals of calcium oxalate are contained in the peripheral layers; some of the cells contain a dark granular colouring matter. Opposite the apex of each of the woody bundles the medulla cells are of smaller diameter, and become gradually more thickened as they approach the centre. The woody wedges consist of xylem fibres with oblique slits, and large pitted vessels with transverse slits; tracheides with bordered pits are occasionally found; the larger vessels are found towards the base of the wedges. At the base of each wedge is a more or less hemispherical mass of thin walled tissue, the outer portion of which is somewhat pressed together. This is what Mr. Moss, in the paper referred to above, has called the procambium; it is really a strand of soft bast, and is composed principally of sieve tubes of which the plates lie on the radial walls and are only demonstrated with difficulty. On the outside of each strand of soft bast in the primary ring is a more or less homogeneous mass of bast fibres. The medullary rays are comparatively broad; the cells are for the most part thin walled and tabular, occasionally, particularly in the inner rings, groups of them are lignified. Forming a ring

around the tissues already described is a structure to which Mr. Moss has applied the name of bundle sheath. This appears to me to be somewhat unfortunate, as this term is generally used with reference to the inner limiting row of cells of the cortex, otherwise it is called the endodermis. This ring is made up of several rows of stone cells; it is broader opposite the medullary rays, as it branches into them. From the fact that this sclerenchyma has the same origin as the medullary rays, it would be better to consider it as the pericycle, a structure which has been fully described by M. Morot (*Ann. des Sc. Nat. Bot.*, tome xx). With the exception of the pith and hard bast, the arrangement of tissues is repeated in each succeeding zone. The cortex contains numerous stone cells. The whole is surrounded by a narrow band of cork cells. Starch is present in small quantity in the pith and medullary rays. Crystals are very numerous in the pith, medullary rays, and sclerenchymatous rings.

In the true drug the number of zones of wood is generally three or four; the internal colour is yellowish or greenish brown, sometimes dark brown; externally it has a black-brown colour, and numerous transverse ridges and longitudinal furrows. Examined microscopically it is seen to have no pith. The xylem masses have the same elements as in the stem; the vessels are distributed irregularly. The diameter of the lumen of the vessels varies from 20mkm. to 192mkm., the average being about 108mkm. The bundles are wedge shaped; those in the primary zone are frequently split at the base by a ray of parenchyma passing inwards towards the pith. Bast fibres are absent from the root. The medullary rays are much broader than in the stem. The rings of sclerenchyma are continuous and narrow, being two or three cells thick. The cortex is narrow and contains but few stone cells; the cork has a tendency to exfoliate. Starch is very abundant in the medullary rays; compound granules are common and give rise to truncated forms. Crystals are plentiful wherever sclerenchyma is found.

The so-called West African Pareira Brava is a mixture of several roots and stems. These are divided into groups numbered consecutively from 1 to 5.

1. This is a stem occurring in pieces varying from 5mm. to 25mm. in diameter. Some pieces are very knobby. Externally it has a chocolate-brown colour, and is marked by longitudinal furrows; internally the colour is brownish yellow. There is a friable pith which is very eccentric, having in a section 25mm. in diameter only four zones of wood on one side, while on the opposite side there are as many as fifteen. The zones of wood are narrow, as are also the numerous vascular bundles. The bundles are only a little broader at the base than at the apex. In young stems the tissue of the pith is thin-walled, hexagonal parenchyma; but in older stems the cells are regularly thickened. The vessels of the bundles have a small diameter. Bast fibres are not in thick layers, the layers being about six rows in thickness. Stone cells in the cortex are rare. The cork is very narrow. Starch is abundant in the pith and medullary rays of the young stem; in the old stem it is absent from the pith. Numerous crystals accompany the sclerenchyma.

2. This is a root and varies in diameter to the same extent as the previous specimen. Externally it is of a dark-brown colour, and internally of a yellow or brownish yellow colour. The woody zones are very similar in appearance and width to those of the stem just described. There is no distinct pith. The primary zone is generally composed of eight or ten narrow wedges of wood and very broad masses of ground tissue, the whole forming a star of reddish yellow set in a ground of paler yellow; sometimes the rays (vascular bundles) of this star are more numerous. The medullary rays are broad and consist of thin-walled tissue. The narrow vascular bundles are, with the exception of the primary ones, of nearly uniform width. The diameter of the lumen of these vessels is from 16mkm. to 72mkm., averaging about 50mkm., or only half the diameter of those of *C. tomentosum*. The cells of the stone rings are small and only two or three rows deep. Bast fibres are absent. About four or five rows of cortical parenchyma, with about the same number of rows of closely adherent cork cells, constitute the cortex. Starch is plentiful, as are crystals.

The general appearance and structure of this root seem to justify the conclusion that it is produced by the same plant as the stem described above.

3. This stem is very similar to the first one; but differs in



several particulars. Internally it is of a lighter colour. The zones of wood are broader, nine measuring as much as fifteen in the other one. It has a compact pith with a crenate margin. The vascular bundles are broad, and have larger vessels. The cells of the pith are much thickened and pitted: those opposite the bundles are smaller and thickened to a greater extent than the others. The primary vascular bundles are broad and short, and have a peg-top appearance, caused by there being three or four vessels across the apex, immediately behind the spiral vessels, of which there are generally three arranged in a triangle. It is this arrangement that imparts the crenate appearance to the pith. The bast fibres are strongly developed, there being from eight to ten rows. The cortex contains many stone cells.

4. This is the root of *C. tomentosum*. The most probable explanation of its presence is that it has been mixed with the false drug after its arrival in this country.

5. This is not of much importance, as I have found only one small piece; but it serves to show the heterogeneous character of West African Pareira Brava. It is a menispermaceous root; but is quite different from any hitherto recorded in the literature of materia medica. The specimens numbered 1 and 2 constitute by far the greater portion of the sample. Whether that described under 3 is the same as the first appears to be uncertain.

Through the kindness of Mr. Holmes I have been enabled to examine the stem of bitter false Pareira Brava, the stem of the inert false Pareira Brava, and the stem and root of white Pareira Brava. The West African is different from any of them.

The stem of the West African differs from the *Chondrodendron* stem in the absence of the characteristic strands of sclerotic cells in the pith; in having vessels of smaller diameter; also in the absence, to a very great extent, of stone cells from the cortex. Starch is much more abundant.

The root differs from true Pareira Brava in having a distinct central point free from wood; in the smaller size of the vascular bundles and vessels; and in the narrow cork layer, which is closely adherent.

I will conclude with a summary of the peculiar characteristics of the false Pareira Brava. It has a chocolate-brown colour externally, a yellow or brownish-yellow colour internally; it has a great number of woody zones, instead of three or four; in the larger pieces there is an eccentric arrangement of zones; the root portion has a star of small diameter, with a variable number of straight, not twisted, rays; and, finally, the woody wedges are narrow and have vessels with a small diameter. These are the more striking peculiarities, and will serve to readily identify the substitute.

The PRESIDENT said the character of the researches contained in the paper showed that a great amount of labour had been involved in its preparation. (Hear, hear.) The question discussed was one of those where the microscope could be made so valuable in detecting adulterations and substitutions. There was one point he would further remark upon. Perhaps Mr. Kirkby had not been in the habit of bringing subjects before a large audience, but it was utterly impossible for anyone, even though acquainted with the working of the microscope, to follow a paper of that description. Enlarged drawings were wanting to illustrate the points described. The paper, he considered, was a most valuable one. (Hear, hear.)

Mr. Moss was entirely in sympathy with the remarks of the President. The paper represented a tremendous amount of work. He knew that from experience, for when—he was afraid to remember how many years ago—he prepared a similar paper he made hundreds upon hundreds of slides before he could find what he wanted. He really got utterly sick of the work, and if he promised, as Mr. Kirkby hinted, to prosecute the same kind of work in reference to the root, he was glad indeed to forget the promise. (Laughter.) He did promise to make a complete chemical examination of the stem with a view of ascertaining whether it was as valuable as the root. He commenced the examination and worked at it for several months with Mr. Naylor—then his assistant—but circumstances so arranged themselves that he could not go on with the matter, and the work was now lying by partly done. With reference to Mr. Kirkby's criticisms of his paper it must be remembered that botany, like chemistry, was a

progressive science, and the terminology varied to some extent at different times. He applied the names he used, "procambium" and "bundle sheath" because a very good authority indeed, used those same terms in reference to the same structures. At that time, it might be remembered, Sachs's excellent work had appeared in Germany, and in order to be posted up in the latest possible information he studied that book fairly well in his attempts to elucidate the structure of the stem. The terms that writer used were those he adopted. He supposed Mr. Kirkby was describing in his paper the stem of the *Chondrodendron*. At the end of the paper the writer pointed out what he said were the characteristics of the false pareira. He (the speaker) could not say that he had met with that kind of pareira, but it was just as well for those who saw those things regularly in the drug market to be able to pick out quickly the features distinguishing those which were genuine from those not genuine. He was glad Mr. Kirkby had taken up the question, and hoped he would continue it. (Applause.)

Mr. KIRKBY said he had intended illustrating his paper with enlarged sketches, but was unable to do so. All he had said regarding Mr. Moss was not in the way of criticising, but was said with the intention of bringing the subject up to the present state of knowledge.

### ON ULEXINE: ITS EXTRACTION, CHARACTERS, AND TESTS.

By A. W. GERRARD, F.C.S., TEACHER OF PHARMACY, UNIVERSITY COLLEGE.

THE first notice of the alkaloid ulexine appeared in the *Pharmaceutical Journal* of August 7 last. It was extracted from the seeds of *Ulex Europæus*, or furze. Since the above time a large quantity of the base has been prepared, the method of extracting improved, the characters of the base and its salts more minutely examined.

In the first experiments made ulexine was found to have been left in the oily matter present in the alcoholic extract, hence the yield was lower than it should have been, and led me after numerous experiments to adopt the following improved process. Twelve kilogrammes of crushed seed exhausted with alcohol and distilled gave 916 grammes of extract, separating on standing into a porous brittle resin and fluid fixed oil. The extract was warmed and well shaken with six successive litres of 1 per 1,000 hydrochloric acid, the separated mixed acid fluids were carefully made neutral with carbonate of soda, evaporated to a small volume, then filtered, and extracted with caustic soda and chloroform. The separated chloroform gave on evaporation crystals of ulexine.

An experiment was made to remove the ulexine from the alkaline liquors by other solvents than chloroform. Neither benzene nor benzole proved of any value; amyl alcohol proved a fair solvent, but not so good as chloroform. The yield of ulexine by the above process was 191 per cent., showing an increase of 33 per cent. on my first working, and due to the solvent action of the hydrochloric acid on the alkaloid previously retained by the oil.

The bark and young tops of furze were both examined and found to contain ulexine, but in much less quantity than the seed; the green tops, as eaten by cattle, gave a very small amount.

A reagent to distinguish ulexine from other alkaloids has been found in ferric chloride, with which the pure base and all its salts give a deep red colour. The reagent must be applied to the solid ulexine salt, as the colour does not appear in solution. There are other properties which particularise ulexine. It is soluble in its own weight of water, insoluble in pure ether, and slightly hygroscopic. Among the salts of ulexine fine crystals were obtained of the nitrate, chloride, bromide, sulphate, and platino-chloride.\*

In view of galenical preparations of furze being required, though not fully prepared to give formulae, a few remarks may be ventured under the head of pharmacy. Water is not a good solvent for the seeds; rectified spirit gives an extract

\* Some fine crystals of these salts were exhibited. The author also showed a flowering top of *Ulex nanus*, which was referred to in the discussion.



of far too oily a nature and soft consistence to be practically useful. An alcoholic liquid extract is open to objection; it gives very unsightly, turbid mixtures on dilution with water. For the same reason a tincture is not to be recommended. In my opinion the best preparation is to be obtained by washing the alcoholic extract with dilute hydrochloric acid neutralising the acid fluid with soda, evaporating and preserving with alcohol, making it of such a strength that one pound of seed shall yield 16 fluid ounces of extract. In such a preparation most of the useless insoluble matters, which in many cases go to make our liquid extracts and tinctures incompatible, inelegant, and unnecessarily nasty, would be excluded, whilst the presence of the active principle would be fully ensured. The author has also found in the plant a peculiar acid, for which he suggests the name *Europic acid*.\*

The PRESIDENT, in thanking Mr. Gerrard on behalf of the Conference, said the paper was on one of those interesting subjects that the writer always brought forward on such occasions.

Mr. NAYLOR observed that it seemed somewhat remarkable to him that while the *Ulex Europæus* was so carefully examined chemically with a view to ascertaining its properties, and while so large a percentage of nitrogen should have been found in the plant, that no previous chemist should have thought it worth while to search for alkaloidal substances in it. He had frequently had the opportunity during the rambles of boyhood of chewing a little of this *Ulex Europæus*, but he never found in it a distinct bitterness that would lead him to suspect the presence of an alkaloid. Was it a matter of fact, he would ask, that the ulexine was physiologically the active principle of the *Ulex Europæus*?

Mr. HOLMES inquired whether the alkaloid was actually obtained from the plant on the table. The two were distinct species. The *Europæus* flowered in April, while the *Ulex nanus* flowered later. Both flowered for a considerable period, the former blossoming through spring, and the latter through summer and autumn. The writer had alluded to the pharmacy on the subject. Had there been any experiments made by physiologists as to the action of this alkaloid? Some members of the Leguminosæ were narcotic and some emetic.

Mr. BENDER said he noticed among the Welsh mountains many acres of the species referred to by the author as being rare.

Mr. ALCOCK remarked that Mr. Gerrard did not say whether he used the ripe seeds or not. In what stage were they? He did not say either whether he had conducted a combustion, and if so what was the nature of the formula arrived at. He thought from the resemblance of furze to broom that ulexine was very probably sparteine, which also was an oily alkaloid.

Mr. MACÉWAN thought the term *Europic acid*, which Mr. Gerrard used for the peculiar acid which he had discovered, was too general. *Europæus* was quite a common specific name, and it was desirable in naming new bodies to give them a term which would indicate as near as possible the source of the body. For that reason, if Mr. Gerrard was satisfied that the acid was a new body, he would suggest that such a name as *ulicic* or *ulexic acid* might be applied to it.

Mr. GERRARD, in reply, said that the manner by which he got at this alkaloid was rather curious. He was purchasing seeds for his garden, and chewing one or two he saw in a bag he found there was something unusual in their taste. He purchased sixpennyworth, made an experiment, and then bought 28 lbs., and worked on that till he got the result indicated. As regarded the physiological action of the ulexine, he could not say much. The alkaloid was only got out late in the summer, and physicians, like other people, were anxious to take holidays. It had, however, a powerful paralyzing agency. He thought the seeds he used were ripe, and proof of this they had in the fact that they were sent into the market for sowing purposes. He thanked Mr. MacEwan for his suggestion regarding a name for the peculiar acid, which he thought could be made use of.

\* Mr. Gerrard desires us to state that, in accordance with the suggestion made in the course of discussion, he has named this body *Uleric Acid*.

## DAPHNIDIUM CUBEBA.

By J. OLDHAM BRAITHWAITE AND EDWARD H. FARR,  
PHARMACEUTICAL CHEMISTS.

THE occurrence of considerable quantities of the fruits of *Daphnidium Cubeba* some time ago, when they were evidently imported under the impression that they were genuine cubebs, enabled us to obtain sufficient for a preliminary investigation.

The fruits somewhat resemble the official drug at first sight, but upon examination show marked differences, being superior fruits attached to a short stalk, and having a hard shell-like testa. The microscopic examination of a transverse section shows a marked structural difference from that of *Piper Cubeba*. The testa is composed of a layer of extremely hard elongated cells, placed with their extremities to the axis, and having an intercepted layer of sclerenchyma on the exterior. In *Piper Cubeba* these cells are absent, the testa being composed of sclerenchyma only.

### A. Extraction with Petroleum Ether.

A preliminary experiment was made with 25 grammes of the drug, which yielded 25.7 per cent. of residue upon evaporating the extract. This residue was a semi-solid unctuous mass, of a deep red-brown colour, melting at 30° C. to a sherry-coloured oily liquid. Exposed in the melted state, it lost weight equivalent to 1.25 per cent. Under the microscope it would seem to be semi-crystalline, giving indications of radiating groups of needles when examined by polarised light.

It being evident that both fixed and volatile oils were present, these were isolated separately—the volatile oil by distilling in a current of steam, when a little under 1 per cent. was obtained. It is of a pure yellow colour, having a marked agreeable characteristic odour resembling that of lemon and verberna. It is solid below 17° C., at which temperature it melts into a mobile amber-coloured fluid. Compared with genuine oil of cubebs, it gives the following distinctive colour reactions:—

Reagent Employed	Oil of Daphnidium Cubeba	Oil of Piper Cubeba
Sol. Br. in CHCl <sub>3</sub> (1 in 20) ..	Yellow .. ..	Violet blue
The same afterwards diluted with absolute alcohol	Sol. canary yellow	Sol. violet blue
HCl .. .. .	Yellow .. ..	At first colourless, then violet
HNO <sub>3</sub> .. .. .	Yellow to dull brown	Yellow to bright violet
H <sub>2</sub> O <sub>2</sub> + CHCl <sub>3</sub> .. ..	Rich amber brown	Violet-brown
The same + water .. ..	Dull amber brown	Bright violet

A further quantity of fixed oil was obtained by percolating with petroleum ether. From this white crystals of lauric acid were separated owing to their insolubility in cold alcohol. These were purified by fractional crystallisation, and the melting-point and saturating power determined. To free the oils from resins they were saponified, twice precipitated by saturated NaCl solution, the soap dried, dissolved in alcohol, and poured into a mixture of 5 parts of ether and 1 of alcohol. The precipitate was decomposed with HCl, and the free fatty acids fractionated with magnesium acetate. A portion of the fatty acids being removed by the ether alcohol, this was treated with AgNO<sub>3</sub>; the precipitate decomposed with HCl dissolved in alcohol, and fractionated with magnesium acetate.

These fractions, when decomposed, were found to have melting-points and physical characters as below:—

Fractions A .. ..	M.P. = 43° to 45° C. = Lauric acid
" B .. .. .	" = 28° to 30° = Capric acid
" C .. .. .	" = 25° = Capric and oleic acids
" D .. .. .	freezes at 5° = Oleic acid

This last acid, heated with PbO, formed a soap entirely soluble in ether, in turpentine, and petroleum ether.



### B. Extraction with Ether.

Ether was found to remove 11.5 per cent. of solid extract. This was found to consist of a dark brown mass, of very bitter taste, and a slight aromatic odour. Less than a decigramme gave rise to marked vomiting and purging—an action afterwards traced to the bitter acid resins present. It was found to reduce Fehling's solution faintly. Treated with acid water, and the trace of resin dissolved removed, the solution was found to give alkaloidal reactions. The acid solution was treated with excess of  $\text{BaCO}_3$ , then with  $\text{Pb2C}_2\text{H}_3\text{O}_2$ ; excess of the latter removed by  $\text{H}_2\text{S}$ , and the gas driven off—the solution still gave very marked reactions with alkaloidal reagents, of which iodine and potassium iodide was the most delicate.

To obtain a further quantity of alkaloid, 500 grammes were exhausted with petroleum ether, the oil shaken with acid water, and the oil-free marc treated with ether; the concentrated percolate was shaken with acid water, the solution thus obtained treated with excess of ammonia and shaken with chloroform, the chloroform residue dissolved in water acidulated with  $\text{HC}_2\text{H}_3\text{O}_2$ , lead acetate added in excess, and the precipitate collected. The filtrate decomposed with  $\text{H}_2\text{S}$  excess of  $\text{AmHO}$  added and extracted with chloroform, washed free from colouring matter, and allowed to evaporate spontaneously. The residue—an almost colourless varnish-like mass, showing no signs of crystallisation even from ethereal solution—is sparingly soluble in water, has a faint alkaline reaction, and a very persistent bitter taste. With  $\text{HCl}$  it forms a crystalline salt, forming in air-borenscent branching needles. In acid solution it gives well-formed crystals with platonic and auric chlorides. It gives copious precipitates with the following reagents:—

Sol. of iodine in potassium iodide	Copious reddish-brown precipitate
potassium iodide .. ..	white precipitate
ammon. phosphomolybdate ..	permanent
picric acid .. ..	yellowish precipitate and crystalline
alkaline mercurio } .. ..	yellowish white precipitate
potassic iodide }	
mercuric chloride .. ..	white precipitate
potassium permanganate ..	reduced

When treated for colour reactions negative results were obtained.

The precipitate thrown down by lead acetate was next examined. Decomposed with  $\text{H}_2\text{S}$ , the solution was precipitated with ammonia, when a copious white precipitate of crystalline scales was obtained. Dried over  $\text{H}_2\text{SO}_4$ , this formed a light greyish powder, practically insoluble in water, readily soluble in dilute acids, from the solution of which it crystallised with ease in well-defined salts. It is not precipitated by alkaloidal reagents, but gives abundant evidence of the presence of nitrogen when fused with sodium and tested by the prussian blue and ferric sulphocyanate indications.

After applying the above tests, the supply of both these bodies was exhausted. As they are present only in minute quantity (less than 0.1 per cent.) in the original drug, and are accompanied by several resins—from the last traces of which they are with difficulty removed—a far larger quantity of material would be required to obtain sufficient to submit to combustion.

After the removal of the alkaloidal portion, attention was directed to the resinous extracts. These were partially separated by means of solvents, but gave no crystalline salts on neutralising with alcoholic potash; and after saponification and subsequent decomposition the resins were reprecipitated in an amorphous form, the soft acid resins forming an emulsion with water when so treated.

Ether soluble resins, 11.5 per cent.	Soluble in $\text{C}_2\text{H}_5$ = 4.9 per cent. A soft extract, acid, and very bitter. With $\text{CS}_2$ split up into two parts; soluble in ammonia.	Soluble in $\text{CS}_2$ = 2.86 per cent. A soft, sticky, red brown, very acid, bitter resin.
	Insoluble in $\text{C}_2\text{H}_5$ = 6.59 per cent. Soft pulvular consistence, dark red brown in colour; insoluble in ammonia.	Insoluble in $\text{CS}_2$ = 2.05 per cent. Pulvular, red brown, faintly acid.

### C. Alcohol Extract.

From the dry ether marc alcohol extracts 3.5 per cent. of soluble matter. The residue is red brown, very bitter, and

very little soluble in water. Acid solutions freed from resin give a barely appreciable alkaloidal reaction. The aqueous solution readily reduces Fehling. On shaking the aqueous solution with  $\text{CHCl}_3$ , a soft bitter resin was partially removed, having a strong glucosidal reaction.

After removing the glucosidal body, the residual resins were found to be separable by chloroform, one being soluble the other insoluble in that menstruum.

### D. Aqueous Extract.

The alcohol marc, when treated with water, yielded 5.8 per cent. of soluble matter: of this 1.6 per cent. was mucilage; no sugars or other definite bodies of interest were found to be present.

The following may be taken as a preliminary statement of the constituents of the fruit:—

Petroleum ether extract, 25.7 per cent.	Comprising volatile oil, 1 per cent.; non-volatile fats, consisting mainly of lauric, capric, and oleic acids.
Ether extract, 11.5 per cent.	Comprising three resins (separable by solvents), two alkaloidal bodies (one precipitated by lead acetate); traces of glucosidal resin.
Alcohol extract .. ..	Comprising faint traces of alkaloid, a glucosidal resin, two neutral resins.
Aqueous extract .. ..	5.8 per cent., including 1.6 per cent. of mucilage.

The moisture was found to be 6.59 per cent., and on incinerating 5.993 per cent. of ash was obtained.

The PRESIDENT alluded to the great care and trouble taken in preparing the paper, which he observed would appear fully in the journals.

Mr. NAYLOR asked whether the writers of the paper gave any specific test for distinguishing the false cubeb from the true cubeb when mixed.

Mr. MACEWAN thought that the fact that the false cubeb contained an alkaloid and the true cubeb did not pointed to a good test, namely, the addition of Meyer's solution, or any alkaloidal reagent, to a decoction of the drug.

Dr. SYMES pointed out that the cubeb referred to might have been mistaken for genuine. Drugs were frequently sent from abroad as other drugs, not with a view to substitution, but frequently because they resembled some other article and were believed to be genuine. He did not suggest that all people abroad were so very honest that they would not attempt a fraudulent substitution. (Hear, hear, and laughter.) When a drug was sent resembling another and attention was called to that buyers were apt to cry "false" at once. Such procedure was apt to prevent enterprise in importing unknown substances from abroad.

Mr. Moss said he had met with a mixture of ordinary cubeb and daphnidium berries, and considered this paper a valuable one, as the daphnidium berry was much more difficult to distinguish than the other spurious cubeb, *Piper crassipes*, the odour of which was pine-like and quite distinctive.

Mr. HOLMES observed there were two false cubeb in the market, and he had recently observed a third.

Mr. ELBORNE did not think cubeb of commerce could possibly be adulterated with this cubeb, which was altogether so unlike the true cubeb that an external examination would suffice to distinguish them. He also reminded the meeting that the report by himself and Mr. Wilson was upon *Piper crassipes* berries.

The PRESIDENT said it was much more difficult now to bring things into the market adulterated than formerly. He believed all these things were sent from abroad with the view of ascertaining whether there was a market for them in this country, not necessarily as an adulteration. What was done with them afterwards he did not know. For some things there were markets, for others there were not.

Mr. UMNEY could quite agree with Mr. Moss that there was no difficulty in picking out from the true cubeb the *Piper crassipes*. In order to more easily pick them out it was necessary to crush them. In his rounds when inspecting drugs on the show days before the sales, he was in the habit of taking a coin, putting the cubeb under, and crushing it with his heel. Then he could detect the presence of *Piper crassipes* at once by its distinctive odour; but this one was



more difficult of detection. It could hardly be said at all times that such drugs came in from absolute ignorance. They generally came in when drugs were very dear. He had known cubebs 25s. per cwt. and 20l. per cwt., and it was generally when the latter price prevailed that the spurious stuff came in. As to cubeb stalks [which had been referred to by Mr. Groves], he thought journalists seemed to find sensational things for their journals occasionally. (Laughter.) He saw some of these stalks, but they were forwarded simply to go into the still to be converted into essential oil.

The next paper read was—

#### NOTES ON TRADE SAMPLES OF CITRATE OF IRON AND QUININE.

By F. H. ALCOCK, F.C.S.

THE subject I have ventured to bring before you is one which is not new to the Conference, for in several forms it has appeared on three or more occasions at these meetings. Of former papers there are those of Schweitzer, Braithwaite, Fletcher, and De Vrij, but the points under discussion had relation chiefly to the amount and nature of the alkaloidal constituent.

During an inquiry into the cause of variation of different samples of this substance with regard to solubility and other characters, I was led to examine specimens of the official kind which occurred in commerce. The results of my examination were thought of interest, and are embodied in the following notes:—

*Source.*—The samples were procured from well-known manufacturers, and by label and otherwise were considered to be typical representatives of the kind now ordered in the B.P. of 1885.

*Appearance.*—The appearance of all was very much alike, but the scales were not by any means fine. It was also noticed that some changed colour much more rapidly by sunlight than others, becoming of a dark-brown colour.

*Solubility.*—This was ascertained by preparing a solution of 1 drachm of substance in 4 fl. drachms of distilled water. It will be seen from the table that three formed clear solutions and three were not so satisfactory.

*Ferric Oxide.*—Under this head is included the ash obtained by ignition in the ordinary way of a definite quantity, and weighing the amount left. It does not vary very greatly, the lowest being the one marked F. On moistening the residues with water, and testing the aqueous portion with litmus-paper, it was found that F was strongly alkaline, while the others were but feebly so, if at all. I have been told the ferric hydrate is sometimes obtained by the use of sodium hydrate in place of ammonium hydrate; but if such is the case, most of it is removed during the washing process. The alkalinity of F, I am inclined to think, was due to potash rather than soda.

*Alkaloidal Constituent.*—As the nature of the alkaloid present in my samples was not to me at the time of the first importance, I contented myself with simply estimating the amount according to the B. P. process, using chloroform as the solvent, and drying the solid residue to practical constancy at 212° F., after first allowing the greater portion of the chloroform to evaporate spontaneously in a current of air. The deficiency of alkaloid in this preparation has been called by a prominent member of the conference a threadbare subject, so that I hardly dare to say much upon this point. The amount of alkaloid still seems to be variable, but not to a very great extent, when compared with results previously published; but it is evident, presuming the B. P. process abstracts all the alkaloid and sufficient manipulative care has been used, that there is still an imperfect understanding amongst manufacturers as to what the B. P. requires, even after the lively correspondence, which has delighted the readers of our journals, and the official dictum of Prof. Atfield. It is desirable that the nature of the alkaloid should be ascertained by official tests, and also that we should be informed as to how and at what temperature we must dry the alkaloidal residue. The figures obtained show an average of 14.2 per cent. of alkaloid. Would not 14 per cent. be more convenient and a more practicable standard to obtain than 16 per cent., or even 15 per cent.?

*Abnormal Constituent.*—Perhaps this is what I consider the most important part of my “notes.” Under this name I include the presence of sulphate, for, although much has been said and written in English and other journals with which I have come in contact, yet I have not met with any giving estimations of the amount of this constituent in citrate of iron and quinine. In all, as I think may naturally be expected, sulphate was found, but in variable quantities. As the B.P. tests are silent on this part of the subject, we may conclude that the manufacturer has consent “by authority” to admit a little, but that there should be such wide differences in amount is not so intelligible, especially when its presence does not indicate careful manipulation. It is unnecessary to say how sulphate finds its way into the preparation; but one question suggests itself to me, viz.: Is the sulphate used without precipitation? for, as will be seen, in four instances the amount of  $\text{SO}_4$  is high and not far off the amount contained in the quinine sulphate, if we suppose that the “mud” has been previously well washed. One manufacturer is reported to have said that “the B.P. authorities have retained the same vain attempt to get rid of every trace of sulphate from the ferric hydrate,” but my results will show that if absolute freedom cannot be obtained, yet we may arrive very near to it. The sample marked C contains but a mere trace of sulphate, and, as this was the best in every respect, I am inclined to think that an article as free as possible from the sulphuric radicle is most likely to give the best results and the greatest satisfaction to those who have to use citrate of iron and quinine.

*Conclusion.*—Within the past few days I find that Professor Prescott, of the United States, some years ago examined some samples of this substance which were used in the States, but it was most likely the variety which does not contain ammonia, and which is not a very soluble kind. He found in six samples three below 1 per cent.  $\text{SO}_4$  and in three others 6.5 per cent., 3.5 per cent., and 0.3 per cent. respectively of that radicle.

#### Tabulated Results.

Sample	Solubility	$\text{Fe}_2\text{O}_3$	Alkaloid at 212° F.	Sulphate ( $\text{SO}_4$ )
A	Clear .. ..	18.2	14.7	0.875
B	Turbid and flocculent .. ..	20.0	14.0	1.812
C	Very clear .. ..	19.8	15.3	0.141
D	Clear, but turbid on standing .. ..	21.1	13.0	2.386
E	.. ..	19.0	14.6	2.467
F	Very turbid .. ..	16.4	14.0	1.704

The PRESIDENT remarked that the paper was most practical, and the Conference was indebted to the writer.

Mr. UMNEY said he had had considerable experience in this subject. He had pointed out that the statement in the old edition of the “British Pharmacopœia” as to the proportion of quinine said to result after the precipitation of quinine by ammonia was erroneous. The old “Pharmacopœia” gave the percentage as 16, but it was clear that that was a mistake. The matter however was unaltered in the new edition, and he challenged the statement. Then it would be remembered the professional editors came down from their pedestal and put it 15 instead of 16 per cent. Any citrate of iron and quinine made by the Pharmacopœia process that did not yield 15 per cent. was not properly prepared. (Hear, hear.) As the Medical Council had conceded that point, pharmacists should be more particular than ever that the preparation should come up to what they themselves said it should be. As to sulphate of quinine being put in as it was he thought this could be done. The sulphate could be put in just as it was, and he had pointed that out in the course of last winter. He was compelled to be sufficiently charitable to hope that the alkaloid here had been lost by carelessness and not by downright fraud. The subject could not, as the writer of the paper suggested, be regarded as getting threadbare, because the time had now come when it ought to be looked into. He for one should say a pharmacist ought to be punished who could not show good cause why only 13 per cent. of alkaloid was present.

Mr. CONROY observed that Mr. Alcock had done good service in bringing the paper before the Conference. He had



tested many samples of citrate of iron and quinine, and he was surprised at the number falling short of 15 per cent. Out of fourteen samples, the lowest was 12.8; nine were under 14 per cent., and the others 15 or a little over. He had never obtained a sample below 15 per cent. when the Pharmacopœia process was followed. Samples which tested below 14 per cent. were those sold by certain manufacturers at a lower figure.

Mr. SCOTT said that during the past year two samples of German manufacture had been handed him. In the one the whole of the quinine had been replaced by cinchonine, and in the other two-thirds, the total alkaloid in both instances not amounting to 13 per cent.

Mr. JONES, as one with experience in the manufacture of citrate of iron and quinine, had found no difficulty in obtaining a product with 15 per cent. He was well acquainted with three well-known manufacturers, and they supplied the Pharmacopœia article, and they never allowed it to fall below 15 per cent.

Mr. ALCOCK replying, said he was glad that Mr. Umney did not think the subject threadbare, as he had once before expressed himself that it was. (Laughter.) He was glad the majority confirmed his results, that they were not up to B.P. standard. Either they were faulty, or manipulative skill was wanting, or they did not contain the proper amount of quinine; and he left it in the hands of the audience to decide which was which.

The Conference then adjourned for the day.

### WEDNESDAY, SEPTEMBER 1.

The President took the chair at 10 A.M. in presence of a fair audience. The first paper read was on

#### THE CORRELATION OF STUDY IN BOTANY AND MATERIA MEDICA.

By W. HILLHOUSE, M.A., F.L.S.

ASSUMING that the pharmacists of this country are not far from the brink of a great change, which will not merely alter the conditions of pharmaceutical study, but will greatly affect, and for the better, the status of the pharmacist, the author apologises as an outsider on approaching at all such a subject as this. He had thought of the subject, however, in consequence of intercourse with the late Mr. W. Southall, who was an earnest worker in the botanical laboratory, close by the room in which the meetings were being held.

Assuming that the main object of the pharmaceutical curriculum was *thoroughness*, the author asked how this great principle of thoroughness can be recognised without unduly sacrificing the student's years. As research has broadened and deepened our knowledge the interdependence of all branches of scientific investigation has become increasingly manifest. Twenty years ago the botanical teacher was tolerably happy with his magnifying-glass and, perhaps, a microscope; to-day he ought to be not merely microscopist, but chemist and physicist as well. To use a common but understandable phrase, teachers of science have largely failed to "play into each other's hands," with the result that the students have largely failed also to grasp the fundamental truths of the correlation of sciences.

Indicating the special advantages of botany, it was claimed to be the best known direction in which to become initiated into the difficulties of microscopical manipulation, while it also gives a broad field for chemical and physical experiment.

To the pharmaceutical student botany is largely a means to study systematically and intelligently *materia medica*, and the author's real aim was to see how, by his botanical studies the student can be best armed for the attack, scientifically and not in desultory wise, of this Giant Despair, as it may be called.

The collective wisdom of the conjoint colleges of physicians and surgeons has ordained that a branch of knowledge which most ordinary beings would consider to be dependent on prior chemical and botanical training shall henceforth, while retaining its chemical basis, be deprived of its botanical side. But, according to the same collective wisdom, therapeutics—the physiological action of drugs as the basis of medicine—

can be and has to be satisfactorily taught during the first year of the student's career! A body of men capable of such an intellectual monstrosity would be capable or anything—even, like the wise ones of Gotham, of cutting off the limb of a tree between themselves and the trunk.

A scientific knowledge of drugs collectively includes—

Characters and means of recognition, comprising appearance, &c., and microscopical characters and tests; an acquaintance with general adulterants and mode of detection; source; general and special properties, active principle, treated generally; method of development of the drug itself, and the nature, anatomical and developmental, of the structures whence it is obtained; the preparations of the drug; processes of preparation and their rationale; methods of manipulation, doses, and physiological action.

It will be seen that there is work here for the chemist, the botanist, the posologist, and the physiologist. If the title "*materia medica*" were lost science would be not much the worse. Pharmacognosy could well replace it, with pharmacogenesis as a handmaiden, pharmacy, posology, and therapeutics retaining their present position.

Principles should be taught first. The deepening of the teaching, accompanied, at it of necessity is, by still further broadening, the author would leave for the higher grade. To use the power of thought and reasoning, this is a prime factor in true education, and he would rather have a man who thinks wrongly than one who does not think at all. There is hope for the one, none for the other. Once get principles and reasons well grounded, and facts marshal themselves.

Something similar to what follows was suggested for the student of the earlier grade:—

1. Microscopic characters of all important drugs.
2. Microscopic characters of the most important drugs.
3. General recognition of adulterants, not specialised.
4. Plants and countries from which the most important drugs are obtained, with a practical knowledge where practicable, and the natural history of some of the most important plants.
5. Mode of origin of a few typical drugs, as castor oil, an ethereal oil, a resin, opium, &c.

The second grade should be an amplification of the first.

The first or earlier stage of the botanical course would include:—The natural history and biology of plants; structure of the most important parts; and systematic botany, including principles and objects of systematisation and application of biology, and the chief natural orders, especially those of economic or biological interest.

The second stage would be an amplification of this.

It is quite possible to teach botany in such a way, and with such illustrations, as shall very materially help the student in his future work, without in any way militating against the thoroughness of his botanical training proper.

The author then gave a list of illustrative roots, stems, leaves, seeds, &c., as indicating plants which might be used as botanical specimens for pharmaceutical students.

Teachers could clothe such a skeleton list with flesh and blood, and thus provide a basis for that common understanding between teachers and taught which would lead to the great desideratum which Professor Hillhouse hypothesized in commencing—viz., compactness combined with thoroughness.

The PRESIDENT said he need scarcely ask them to record their thanks to Professor Hillhouse for his very interesting paper. It was a paper that commended itself to the earnest consideration of every student of plant life in connection with *materia medica*. (Applause.) He called upon Dr. Trimen for some observations.

Dr. TRIMEN (Ceylon) remarked that generally he agreed entirely with everything in the paper. But with regard to the title "*materia medica*," which was familiar to all of them, it was, of course, an old-fashioned term, and might well be used in English for "drug"; but as that term would hardly fit in with the ordinary scientific terminology, he thought it would be a good thing if "*materia medica*" were dropped and "pharmacology" employed in its stead. It was, he said, important that all of them, especially those employed in pharmacy, should consider drugs as their most important study, and to which all things should be subservient. In medical education he considered it of much less importance. In fact, he should be glad to see the *materia medica* course



entirely abolished in the education of medical students, and the time devoted to therapeutics. The more they separated the action of drugs from their mere origin and structure, the better it would be. With regard to botany, they came to a different thing altogether. It was an abstract science covering an enormous range, with a great many branches, of which medical botany was a very small and not particularly important one. In former times it was attempted to teach in the ordinary summer session to medical students a complete course of botany. The thing was, of course, utterly impossible. In London alone there were some thirteen professors or lecturers on botany in the different medical schools. He felt himself, twenty-five years ago, that the course was altogether unworthy of the subject. With the means at their disposal, it was not possible to teach botany as it ought to be taught during the time that was given to the subject. Since that time botany had made enormous strides, and had become more and more a separate science, and he thought that the attempt to teach the whole of such a subject in medical schools was a mistake. If men wished to go in for science they would do it; but it was impossible to make it an interesting part of medical school education. He would eliminate all the pure science from their medical schools, and let those who had a predilection for science obtain their tuition elsewhere. But with regard to pharmacological studies, the case, he thought, was entirely different; botany should be specially studied by the pharmacist. That and chemistry were the subjects to which he ought to devote the whole of his time. The course of botany should be made much more thorough than it had hitherto been among pharmacologists. He considered that the study of histology was also of the greatest importance. Pharmacists should learn to recognise drugs by mounted portions and by their general structure; students should be encouraged to learn the history and origin of drugs. That was a most interesting study, which he never could refer to without thinking of his old friend Daniel Hanbury. (Applause.) To work in Hanbury's spirit he thought would add enormously to the interest of the profession and to the value of it. (Applause.)

Mr. HOLMES said he had long felt that the teaching of botany was not so practical as it might be. He was very glad that so high an authority as Professor Hillhouse had called attention to it. Professor Hillhouse had had far more experience than some of the older botanists in the new method of teaching. In reference to names for *materia medica*, he gathered that Professor Hillhouse preferred the term "pharmacognosy," for that part which pharmaceutical students should take up. He quite agreed that that was the term now generally used for the study of *materia medica* in that direction. Pharmacology, the term used by Dr. Trimen, had, he thought, a different sense at the present day, as applied rather to medical treatment than to the knowledge of drugs.

Mr. ELBORNE (Manchester) quite agreed with Dr. Trimen in the proposal to dismiss the subject of botany from the course of study of medical students. His experience of the teaching of botany to medical students was that the whole thing was a waste of time.

Mr. MARTINDALE thought they saw every day the effect of want of knowledge of drugs on the part of medical men, and of course they could not get a knowledge of drugs and *materia medica* without having first some knowledge of botany; but he should lose sight of botany without regret in the curriculum of the medical students. Of course it was possible in some preliminary scientific examinations, such as in the London University examination, that it might be included still, but it was found, as Mr. Elborne had said, that life was too short for the ordinary medical practitioner to go through the whole of the course required. There were more important subjects in the curing of disease than botany, so the Medical Council had, he thought, rightly given way on that point. Since Pereira's time they had undergone a great change in the medical view of the subject. When he was at the University of London it was a subject of the first examination, and Pereira's big book had to be ground up by all medical students who wished to pass that examination, and it was a terrible grind. He had heard from some of those who did it that it was the hardest work, and of the least use to them, of anything they did in their medical career. Now that pharmacognosy was thrown over by the medical profession in their training it was all the more important that pharmacists should take

up the subject thoroughly. He must say that he had looked with regret upon the manner in which the Pharmaceutical Council took up botany. They had not pushed it to the extent that it might be, especially in regard to histological work. In the Major examination certainly histology should form a part. He was pleased to have the sketch that Professor Hillhouse had given them of what he would recommend. The sketch was, he thought, a first-class one, just such a one as a Major candidate should go through to get a knowledge of drugs equivalent to that required of the continental pharmacist. They were much behind the continental people—Germany for example—in regard to their botanical work, and he looked forward to no distant date when their Council might take this matter up, and see if they could not develop the subject. (Applause.)

Mr. SIENSTONE had listened with very great interest to the paper read to them by Professor Hillhouse. He did not feel himself bound to criticise the paper, because he had had comparatively little experience in teaching botany, though he had had some experience in the results of it. He must say that he had always observed one great want in the result, and had already drawn attention to the subject in a published letter. It was the want of the knowledge to practically apply the information acquired at the lectures wherein they were at fault. What he had noticed was this—that a large number of students who had attended, no doubt excellent demonstrations, excellent courses of lectures, and so on, if they were shown a plant which had distinct characteristics they could give at once the name of it with the character of any particular organ. If they were shown a distinct pedate leaf they could tell that it was pedate. If they were shown any portion of a plant that distinctly came under any botanical term, they could tell what it was. But if they were to take them into a field and find a plant, and ask them from the information they had acquired at lectures to name the plant, then they found the difference, because they never found the characteristics of plants, as a rule, except in exceptional cases, exactly as they were given in the plates shown in the class-room. It seemed to him that every course of teaching in botany ought to include a few practical lessons at the end of the course. A very little would do it. Merely five or six good walks in the country with an experienced practical botanist would give a man at once confidence in the application of terms and of different things he had learned from the course; but, without some special lessons upon applying the knowledge, he did not benefit nearly so much from the course as he otherwise would do. The same applied to histological work; unless a man had rough material given to him, and was shown how to prepare it, and how to exhibit the microscopical characters, —it did not matter what course of lectures he had attended—he would not be able to do it properly; but a very few lessons after the course of lectures would turn his bookwork to advantage.

Mr. ALCOCK said he had had a little to do with the teaching of botany, and he had very frequently found that pharmaceutical students hated botany, and in the London schools there was very little—or there used to be—to assist them in driving away that hatred. He remembered when he attended probably the best lectures in London on the subject, they were shown, during a course of three months' histological study, two small objects. These were interesting, and all the men liked them; but if the two had been 200 the students would have appreciated them very much more. Not very far from the room in which they were met they might see a thoroughly equipped laboratory, which was supposed to be, and he had no doubt was, specially set apart for the study of botany. He was surprised to see the number of microscopes, and stools, and every appliance near to the students. They sat down and did their work in the presence of the professor, and he had never seen anything so complete before. If they could introduce that style of thing into their pharmaceutical schools, he had not the least doubt that they should find their embryo pharmacists would like botany very much better than they did at present. In Birmingham he believed the pharmaceutical students were very well off for the study of botany, as they could go to Sutton Park, or any of the free parks of Birmingham, or the Botanical Gardens, where every facility was afforded them. Although they had all these advantages in Birmingham he found that the students did not come forward as well as they might do, and if they could infuse a little more enthusiasm not only into the students but



into the students' employers, they should get some good botanists in the pharmaceutical world. (Applause.)

Mr. SCHACHT remarked that the subject-matter of the paper was certainly beyond the sphere of his criticism, but throughout it all he was struck with a pervading tone which seemed to supply a strong argument in support of a view he had sometimes expressed—that pharmacy must now be considered an essential and integral part of the medical art. He was pleased indeed that Professor Hillhouse shared that view.

The PRESIDENT said he would just say how much he sympathised with Mr. Hillhouse in the paper he had read, in which there was sufficient matter to occupy them not merely for an hour but for a full morning if they could spare the time. When they had a little more room at Bloomsbury Square this subject would receive attention at the hands of the Council. (Applause.)

Professor HILLHOUSE in replying said he had taken a somewhat bold step in intruding his opinions on the Conference. The opinions of outsiders were usually disregarded, or regarded with feelings of contempt and something deserving castigation for impertinence. But this matter had not been concocted alone in the botanical laboratory and his own private room. His Birmingham friends would bear him out in saying that he had for some time taken a deep and practical interest in pharmaceutical work—(applause)—and largely because he felt sure that pharmacists would in the long run have to take up certain portions of work that heretofore had been taken up by so-called medical men. (Applause.) Hence the subject was not a new one to him, as he had pointed out in his paper. He had heard with much sorrow of students who had finished their course of botany with a sense of hatred. He was not surprised at the feeling, because he believed he hated himself at one time. He was taught in just the same fashion, in which nine out of ten would, he believed, hate it. He felt that the result was not due in any way to want of interest in the subject on the part of the students, but almost wholly to the lack of enthusiasm imparted by the teacher, and to the absence of a proper scientific method of teaching. The teaching had grown up higgledy-piggledy, and what one had to do was to work oneself free from old associations, and with the broadening and re-opening of the subject broaden and re-open their methods of teaching. Although the discussion had been brief, he was not on the whole surprised, because the paper was not one which would commend itself to instant discussion. He had not written it with that view; he had, in fact, made it rather dry, so that there might be more thought in it for future reference, and seeds for a future harvest. Perhaps the only point that had been touched upon in the discussion was one that was brought in incidentally, namely the relation between botanical teaching and medical students. He must express his own complete and absolute opposition to his friend Dr. Trimen on the subject. (Cheers.) He did not think that a medical man, as a medical man pure and simple, needed it. Perhaps in the same sense he did not need half-a-dozen other things that were taught, such as chemistry; but if he was to be a scientific man—if he was to look upon medicine as a branch of science—he must have scientific training, otherwise he would be simply an empiricist little better than the old quacks with which this country was at one time filled. Every man who worked with tools, whether the tools were iron or the intellect, should know his tools before he understood how to use them, and medical men, perhaps chiefly of all, bearing in mind the enormous power that was put by modern legislation into the hands of the doctor. The doctor was absolutely qualified to kill every one of them provided he chose to do it, and nobody could say him nay. (Laughter and applause.) They had too much of the let-him-down-easy in their examinations. They had forgotten that the dignity and reputation of a great profession was at stake, together with the health of the public, and there ought to be no safeguard left out, no door left open for the possibility of the rubbish of the intellectual world to get into the profession which had such enormous powers as those he had mentioned. Dr. Trimen in private conversation had pointed out to him the case of the country medical man, who had so small a return for his labour that he could not be expected to do so much. He had replied to Dr. Trimen that the country medical man was the one who would get most from the study of botany. If there was a

subject that the country medical man should take up, it was the subject of botany as a preliminary training. If he had expressed any warm feelings on this subject they must please pardon him: he must confess to feeling warmly upon it—(applause)—and perhaps he had spoken all the more openly from the fact that thus far he believed no one had attempted to discuss in plain, bare, and simple terms the action of the Medical Council in their recent alteration. He expressed the hope that his communication might be of some future value, as well as present interest, to the Conference. (Cheers.)

Thereafter Mr. Reynolds introduced his motion in reference to the B.P.C. formulary, the discussion on which was published in last week's CHEMIST AND DRUGGIST. There was then read an abstract of a

#### NOTE ON THE PREPARATIONS OF NUX VOMICA IN THE BRITISH PHARMACOPEIA.

BY N. H. MARTIN, F.L.S.

It might have been supposed that the standardisation of the preparations of nux vomica ordered in the new Pharmacopœia would have prevented the variations in colour, which were the cause of frequent remarks made by physicians and others who prescribed it. But finding that, so lately as in June of the present year, more than nine months after the publication of the Pharmacopœia, inquiries were still addressed to his firm as to the reason why their tincture was different in colour from that of some other makers, presumably purchased about the same time, it occurred to the author to collect samples of the tincture from chemists in different parts of the country, and to ascertain by analysis, in the first place, to what extent the new Pharmacopœia processes are followed, and, in the second place, whether the object of standardisation—viz., uniformity—had been obtained by the method adopted for carrying it into effect. Twenty-five samples of the tincture were collected for him by means of prescriptions written for "Tinct. nucis vomic., ʒij." in towns between Falmouth and Newcastle-upon-Tyne, and the result, so far as the tincture is concerned, may be considered to represent fairly the condition of the preparations as found in our pharmacies at the present time.

The specific gravities of the tinctures were taken, then a portion was evaporated over a water-bath until it ceased to lose weight, in order to ascertain the percentage of extract, and, finally, the total alkaloids were estimated by the second process given by Messrs. Dunstan and Short in their report of tincture of nux vomica. Eleven tinctures, which, from their colour, were evidently prepared direct from nux vomica seeds, are classed in the first table, and the second represents fourteen samples, which equally bear evidence of having been prepared by the method directed in the Pharmacopœia.

#### *Analyses of Tinctures of Nux Vomica of a Pale Yellow Colour.*

No.	Specific gravity at 60° F.	Percentage of dry extract	Percentage of total alkaloids
1	0.8365	.84	.157
2	0.8378	.66	.137
3	0.8408	.80	.137
4	0.8422	1.04	.187
5	0.8433	.62	.119
6	0.8434	.62	.214
7	0.8474	1.27	.285
8	0.8516	1.18	.279
9	0.8552	.94	.242
10	0.8864	1.31	.288
11	0.8822	1.20	.212

It thus appears that in the first table seven out of eleven samples are below the standard of the Pharmacopœia; in the second table ten samples out of fourteen are stronger than the Pharmacopœia standard, and it is quite conceivable that in a couple of years the variation will be as large as under the old Pharmacopœia, and with the tendency to a greater potency, which in this particular drug will be attended with as great danger and inconvenience to the public health.



*Analyses of Tinctures of Nux Vomica of a Light Brown Colour.*

No.	Specific gravity at 60° F.	Percentage of dry extract	Percentage of total alkaloids
1	0.8804	1.00	.281
2	0.8818	1.18	.274
3	0.8824	.96	.196
4	0.8836	1.13	.242
5	0.8866	1.29	.219
6	0.8865	1.08	.313
7	0.8372	.96	.214
8	0.8880	1.24	.276
9	0.8902	1.27	.285
10	0.8914	1.16	.278
11	0.8922	1.21	.196
12	0.8925	1.25	.256
13	0.8933	1.03	.242
14	0.8955	1.34	.231

It appears too that more than one-third of the tinctures in use are still prepared according to the old Pharmacopœia, and that the much-desired uniformity in alkaloidal strength has not been attained by the process suggested by Messrs. Dunstan and Short, and made official in the Pharmacopœia.

Other experiments lead to the conclusion that the process adopted in the Pharmacopœia yields a preparation so unstable that to call it a standardised preparation is misleading. This instability depends upon the hygroscopic properties of the freshly evaporated extract.

The author reproduced Messrs. Dunstan and Short's table, and added another column, which gave the percentage of dry extract, and, although there was a difference between the highest and the lowest total alkaloids of 7.21 per cent., the column of dry extract did not show such variance. So far as published evidence shows, there exists no relation between the amount of extractive matter and the amount of total alkaloids existing in different samples of nux vomica. The consequence is that a sample may be rich in extractive but poor in alkaloids, or it may be rich in alkaloid but comparatively poor in extractive, and this would have so large a percentage of moisture left in the finished product that it would be almost sure to become stronger under the ordinary conditions of storage and use.

In concluding, Mr. Martin said:—"I must not be understood to underrate in the least degree the value of the work done by Messrs. Dunstan and Short upon this subject. I only regret that they did not include amongst the objects of their investigation an exhaustive pharmacœutical, as well as 'chemical and botanical' analysis of a sufficient series of samples of nux vomica, seeing that the practical object of their research was 'to devise processes for the production of standard galenical preparations whereby the therapeutic action of these preparations shall be rendered as far as possible definite.'"

The PRESIDENT, on behalf of the Conference, thanked the writer of the paper for his observations.

Mr. SCHACHT remarked that he agreed with the writer as to the difficulty of the position, and in estimating very highly the work done by those gentlemen who had laboured so hard. His objection was that up to that time there was no good therapeutic authority declaring what the medical potentiality was due to, although the alkaloidal strength might be nearly identical with the medical potency; one sample of the drug, in his opinion, might contain a larger portion of the least powerful alkaloid and another a greater portion of the more powerful. There was another serious difficulty in this intricate subject—whether the brucine was inert or active; but he did not wish to throw cold water on the investigation; he only wished to indicate the lines of the subject in which knowledge was wanted.

Mr. CONROY fully appreciated the work done, but thought it would have been far preferable if the tincture had been made direct from the seed. In working large quantities of nux vomica, he found there could be brought out a thin or a thick extract. The thin extract would lose moisture, and become much more potent. The Conference was much indebted to Mr. Martin for his paper.

Mr. JONES (Coventry) said that, in reference to the colour of the tincture, he had had several cases brought to his

notice in which it had varied from a pale greenish tint to a very dark brown, showing that it was prepared either direct from the seed or from varying qualities of extract. The extract in the market gave very different results. In dissolving the extract he had found it was absolutely necessary to make a final analysis of the tincture, in order to get the exact strength, so that he quite agreed that it would be best to get the powdered seed and work directly.

Mr. MACKENZIE thought that the Conference must appreciate the paper. He should like to ask the writer whether, from a therapeutic point of view, the old tincture was better than the new.

Mr. ALCOCK observed that the best way of preparing the tincture was probably from the seeds, which should be carefully estimated first. They knew the composition of the seed. It was supposed that the alkaloid was in combination with igasuric acid, which was a very delicate acid indeed, and if a solution was left for any length of time it might undergo a change. Probably the variability in the colour was due to this delicate acid, which was subjected to some alteration during the process of evaporation. Some time ago he had to assay an extract, and he found it contained a lot of what seemed to be chlorophyll, but he could not arrive at its source. This might account for the greenish tint of some of the tinctures.

Mr. MARTIN briefly replied to some of the points raised.

Mr. WILLIAMS followed with a paper on

## THE PRESERVATION OF ETHYL NITRITE.

By JOHN WILLIAMS, F.C.S., F.I.C.

THE author has previously recommended glycerine as a preservative for hydrocyanic acid, and has found that a solution containing 25 per cent. glycerine and 25 per cent. acid prepared some years ago, which has been kept under ordinary conditions in a stoppered bottle, and has been exposed to diffused light since, was examined a week or two back, when after so many years it was found not to have become in any way discoloured, and contained even now 12 per cent. of real acid.

He suggests for the preservation of ethyl nitrite a mixture of 1 part pure glycerine, and 2 parts of pure absolute alcohol. A given quantity of this liquid being taken, pure dry gaseous nitrite of ethyl may be condensed in it to any extent desired by weight, so that a 5-per-cent. or 10-per-cent., or stronger solution could easily be made, the percentage being noted by the increase in weight due to the absorption of the gas. This liquid alcoholic glycerine cannot be made to take up more than between 15 or 16 per cent. of the gas.

The specific gravities of the solutions so made are: 5 per cent., 0.922; 10 per cent., 0.920; 16 per cent., 0.917.

These solutions when added to water give off some of the nitrite ethyl as a gas with effervescence, so that they must first be diluted with spirit to about 2½ per cent. before testing them by either of the B.P. methods. The aqueous solution of this glycerio-alcoholic solution of nitrite has a very pleasant flavour, similar to wines of the dry sherry type, such as Amontillado or Vino de Pasto.

Mr. ALLEN said he was much struck with the experiments, which proved that the amount of gas that could be retained must not exceed 2½ per cent., or it would not mix with the water without a loss of gas. He thought the 2½ per cent. mentioned in the Pharmacopœia was amply strong for any one. If medical men would only prescribe so much of Mr. Williams's preparation, and prescribe a certain amount of nitrite of ethyl as distinguished from spirit of nitrous ether, matters would be simplified. He was pleased to find that Mr. Williams had found the method he had suggested worked in practice. He deprecated any attempt to pretend that the method assumed great accuracy. It never was intended for that, and when the gentleman of Edinburgh made experiments, he should have remembered that the method was only for readily ascertaining an approach to accuracy.

Mr. KEMP asked whether the stronger preparation was not more easily diluted. This would be better for transporting, and upon arriving at its destination it could be weakened.



Mr. WILLIAMS, in replying, said there was no doubt that a somewhat concentrated preparation would travel better and keep better on a long voyage, and could be diluted with a mixture of glycerine and alcohol when it arrived at its destination. It would take about five times the volume of glycerine and alcohol to one part to bring about the 2½-per-cent. solution.

Mr. MACEWAN said he understood that Mr. Williams meant his suggestion to apply to pure ethyl nitrite, and asked whether it had anything to do with the spirit of nitrous ether, which was used medicinally. He took it that it might be a risky thing to take such a preparation and dilute it with water. Perhaps Mr. Williams would say if it were possible for a nitro-compound of glycerine, such as nitro-glycerine, to be formed when the ethyl nitrite decomposed.

Mr. SCOTT considered that that was impossible.

Mr. WILLIAMS said he had no wish to recommend it as a substitute for spirit of nitrous ether. It was simply a question of solution of nitrite of ethyl in a medium which would keep it.

Mr. ALCOCK pointed out that many pharmacists were much against people calling glycerine a preservative. He thought they had here a very good example that it was a preservative.

Mr. WILLIAMS thought the nitro-glycerine point was rather a scare. Replying to Mr. Schacht, he said he could not offer a test for nitrite of ethyl that would be a real test for the ether. Things should be taken with their surroundings. It was easy, as had been said, to make up a bogus preparation for students, but that was out of the question.

A paper was then read of which the following is an abstract:—

#### THE BELLADONNA LINIMENT OF THE BRITISH PHARMACOPOEIA.

By F. RANSOM.

EXPERIMENTS were firstly undertaken to ascertain whether a more economical process could be devised than the present official method, without deterioration of the alkaloidal strength of the liniment. It was found that by reducing the root to No. 20 instead of No. 40 powder, and pressing the marc after two pints of spirit had been employed, that the final product was slightly stronger than that prepared strictly in accordance with the Pharmacopœia, and that a saving of fourteen fluid ounces of spirit had been effected.

In comparing the strengths of the 1867 Pharmacopœia liniment and that at present official, no great difference was found when prepared from the same root; but the former was more liable to variation, owing to no definite degree of disintegration being ordered.

By the official process it was found that the root is not exhausted, only about 70 per cent. of the atropine and hyoscyamine being removed.

Owing to the great variation in the alkaloidal value of the different roots operated upon, commercial samples of the liniment were examined and found to contain from .067 to .255 per cent. of atropine and hyoscyamine.

To ensure more uniformity it is suggested that a standardised preparation should be introduced. A ready method of standardising the alcoholic root extract could be devised, and a liniment prepared from this would be of a known and definite strength.

Mr. MOSS remarked that working on a small scale was quite different from working with large quantities of material: they were compelled to use a No. 20 powder, otherwise percolation was completely stopped, owing to the fine particles blocking up the way. In grinding such roots as belladonna they could not get an absolutely uniform powder, and No. 40 powder would probably go through a No. 20 sieve.

Mr. UMNEY said he was pleased that Mr. Ransom had continued his researches. He thought the time had come when the alcoholic extract of belladonna root should be standardised. He found that the extract was variable, which appeared to arise from percolation on the one hand and variation of alkaloids in the roots on the other. He thought that in grinding drugs they had not all quite followed the B.P., and he must, himself, confess to having erred from its

directions. It should be known that there was a large amount of fine powder obtained in grinding such powder as No. 40. The question was, what was to be done with it?

Dr. SYMES observed that it was well known that certain portions of drugs would powder more readily, and form a finer powder, than other portions would do, and it so happened that this finer part varied much in activity; sometimes it might be all starchy matter, at others, as in the case of ipecacuanha, it might contain the whole of the active ingredient. In consequence of this it became a serious matter whether they were to follow the directions of the B.P. or whether they must follow common-sense principles.

Mr. UMNEY here stated that he had had a long correspondence with Professor Redwood on the matter, and he maintained the B.P. position.

Mr. KEMP showed how the accumulation of fine particles at the bottom of the percolator might be prevented by placing filter-papers between layers of the drug in the percolator.

The PRESIDENT said the paper brought to the front two important points. One was the meshes of the sieve and their value, and the next was the question of percolation—whether the substance to be percolated should be in the form of a fine or coarse powder. He could not understand why in making the belladonna liniment the root should be given in the B.P., when it had been determined beyond question that the leaves contained a larger proportion of the alkaloid. He was really at a loss to understand it. (Hear, hear.)

Mr. RANSOM, in replying to the discussion, said that, as far as his experience went, he believed the alkaloid varied in the leaves and in the roots. With regard to standardised preparations, he hoped they would not be condemned. No doubt greater uniformity might be obtained, but it seemed to him that a preparation of belladonna might be more useful standardised and more suitable for standardising, than many other kinds of preparations.

#### SALOL: A NEW ANTISEPTIC.

By JOHN MOSS, F.I.C., F.C.S.

A FEW notes on a new antiseptic of promise will no doubt interest the members of the Conference.

Our information on salol is derived chiefly from *La Semaine Médicale*, April 14, 1886, which reports a meeting of the Medico-Pharmaceutical District Society of Berne, held in that city on the 6th of the same month. M. Sahli introduced salol as a new anti-rheumatic and antiseptic produced by Professor von Nencki, and as possessing certain very decided advantages over other bodies having allied therapeutic characters.

It is perhaps hardly correct to speak of salol as a new antiseptic. It is rather an association—a combination, indeed—in which are concerned two well-known antiseptics—salicylic acid and phenol. It is somewhat startling to be told that phenol is an ether which is playing the rôle of a base, and that the compound is salicylate of phenol. We should be disposed to assume that M. Sahli's remarks on these points are misreported, and that salicylate of phenyl was intended, were it not that the word salol is evidently compounded of the initial and terminal letters of the former title.

Salol is a white crystalline coarse powder, rather like damp table salt. The odour is very marked, and is identical with that of oil of wintergreen, which is chiefly salicylate of methyl ( $\text{CH}_3\text{C}_7\text{H}_5\text{O}_3$ ). When taken into the mouth, a fainter impression of the smell is received on the palate, and the taste of carbolic acid is just suggested. It is very sparingly, if at all, soluble in water at 60° F. It dissolves in proof spirit, more readily in stronger spirit, and is precipitated on dilution, a permanent emulsion being formed. The solution has no effect whatever on litmus.

Salol melts at 106° to 108° F., forming at a slightly higher temperature a clear white liquid like carbolic acid. If it be melted under water and shaken till cool, the original condition of a coarse crystalline powder is restored.

It dissolves readily in caustic soda solution, and, on addition of acid in excess, the liquid becomes milky, oily-looking drops are visible, and the smell of carbolic acid is noticeable. When the liquid is only slightly acid, the addition of a



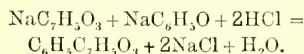
nearly neutral solution of ferric chloride produces the purple coloration indicative of salicylic acid.

The advantages which are claimed for salol over salicylate of soda, for which it is proposed as a substitute, are dependent first of all on its insolubility in water and the juices of the stomach, and secondly on the ease and completeness with which it is decomposed after passing the pylorus. Being insoluble in water, it is free from the repellent and nauseating effects of salicylate of soda, which some patients find so objectionable that even syncope has sometimes supervened on ingestion. Passing through the stomach unaltered, it undergoes decomposition in the duodenum, where it comes into contact with the pancreatic juice, and is broken up into salicylic acid and phenol. Professor von Nencki claims that this change is due to the pancreatic ferment, but a simple experiment suffices to show that so highly organic a secretion is not essential to produce the effect referred to. The pancreatic juice is alkaline in character, and I find that the addition of a few drops of solution of soda brings about the decomposition, so that the further addition of ferric chloride is followed by the characteristic purple coloration. The action of the soda takes place very slowly in the cold, more quickly when gently warmed. The liquid must be neutral or slightly acid for the colour to be produced, though much acid discharges it. The best effect is obtained by digesting salol in solution of soda at 100° F. for an hour, pouring off the clear liquid, adding slight excess of hydrochloric acid and diluting, then adding a dilute solution of ferric chloride. No coloration whatever results when salol is heated with an acid instead of alkali previous to the addition of ferric chloride.

Now, the salivary secretion also is alkaline, and if alkali is the only essential factor in the analysis of salol, it ought to happen that digestion with saliva should lead to the purple coloration with ferric chloride under the conditions already laid down, and this, in fact, is what occurs. The saliva is so slightly alkaline, however, that the amount of salol decomposed is correspondingly minute, and the coloration very faint. The weak taste of salol is therefore accounted for.

Having passed the duodenum, the salicylate and phenate of alkali, which are slowly produced as the gut is followed, are in condition to exercise their respective antiseptic powers, and to be absorbed into the circulation. They are voided as nrate of salicyl and as sulpho-phenol.

So far as I know, the process of manufacture of salol has not been made public. I have tried to produce it by dissolving salicylic acid in excess of carbolic acid with the aid of a gentle heat, but have not succeeded in getting the whole of the salicylic acid so combined as not to give the purple coloration at once with ferric chloride. It seems not improbable that it should be formed by treating with hydrochloric acid at an earlier stage in the manufacture of salicylic acid. As you know, when the carbonic acid gas is brought into the presence of carbolate of sodium in the retort, a molecule of the former is absorbed with production of a molecule of salicylate of sodium, and a molecule of carbolic acid which distils away. If the mixed salicylate of sodium and carbolic acid—or, better, carbolate of sodium—be treated with hydrochloric acid, the following equation would probably represent the decomposition:—



Chemically speaking, salol is salicylate of phenyl. The possibility that it is phenyl salicylic acid—of which the formula would be  $\text{HC}_7\text{H}_4(\text{C}_6\text{H}_5\text{O})_2$ —is contra-indicated by its indifference to litmus, though the latter view receives support from the slow rate at which the compound is decomposed by soda, as well as from the observation that after the decomposition is effected the addition of hydrochloric acid, under ordinary conditions, is not followed by the re-formation of the original compound. I am aware that the latter fact apparently disposes of the suggestion just made as to the manufacture of salol, but it must be borne in mind that the effects of high temperature and pressure on two bodies set free in presence of each other cannot be disregarded.

Salicylate of phenyl contains 36 per cent. of phenyl, corresponding to 44 per cent. of carbolic acid. Sahli says that salol contains not less than 38 per cent. of phenol; but, seeing that his account did not concern itself chiefly with the

chemistry of this new compound, a little latitude of expression is admissible.

Sahli claims that more carbolic acid may be ingested as salol without unpleasant secondary effects than in any other way. The dosage of salol being 30 grains three or four times a day, 12 grains of phenol are exhibited in every dose, and the freedom from irritation and other unpleasant local effects may be attributed to the slow rate at which salol is decomposed under the action of the intestinal juices.

For the present it remains only to state what are the various ailments in which Sahli has used salol with good effects. He has used it in all rheumatic affections, in chronic uricæmia, in sub-orbital neuralgia, as an antipyretic, in diabetes, in intestinal catarrh, in typhoid fever, in cholera, against intestinal parasites, in catarrh of the bladder, in ozæna, in otorrhœa, as a local application in gonorrhœa, and as a mouth wash.

The CHAIRMAN said he recollected that not many years ago Mr. Daniel Hanbury brought under their notice, at one of the meetings of that Conference, chloral hydrate for the first time, and it was possible that salol might have a similar extended use in medicine.

Mr. SCOTT said that he had noticed the antiseptic powers of salol, and also its paralyzing properties on bacteria.

Mr. NAYLOR said he did not gather from Mr. Moss whether he had determined the percentage of carbolic acid in the salol. Unless they had some quantitative results, it was difficult to state whether the body was simply and solely a compound of salicylic acid and phenol.

Professor ARMSTRONG reminded the Conference that the modern method of preparing salicylic acid did not involve the production of phenate of soda in combination with salicylate of soda; but a basic sodic salicylate was formed by the action of carbonic acid gas on sodium phenate.

Mr. Moss said he did not profess to have made any quantitative examination of that body. He assumed that it was a chemical compound, and he thought he was warranted in doing so. He was not aware of the fact, which was mentioned by Professor Armstrong, which of course proved that salol could not be made as he suggested.

The remaining papers were read in abstract, in the following order:—

#### NOTE ON THE "PURE TEREBENES" OF COMMERCE.

By W. L. SCOTT, M.S.C.I.

AFTER referring to the mode of manufacture and the unfortunate name of the article, the author proceeded to give an account of the examination of fifteen samples of the "pure terebene" of commerce, most of which he found to be contaminated with resin, turpentine, and peroxide of hydrogen. Three samples contained over 1 per cent. of resin, and only four of them were free from peroxide of hydrogen, which, the author states, is very liable to be present, however carefully the terebene may be prepared. Its formation may be prevented by keeping a bag of silver oxide in the liquid.

#### NOTE ON THE IMPURITY OF "PURE" TEREBENE AS INDICATED BY THE POLARIMETER.

By JOHN HODGKIN, F.L.S., F.I.C., F.C.S.

THE author reports on ten samples of terebene. He calls to mind (1) that pure terebene is stated to be optically inactive, and (2) that the average polarimetric rotation of American turpentine (from which these were probably prepared, for all were dextro-rotatory) is +18° 6'. Taking 18° 6' as the standard, the author worked out the percentage of unaltered turpentine of this rotation, in order that the varying values might be seen at a glance. The range of unaltered, *i.e.* polarimetrically active, material still existing in the finished article is wide—from 3.2 per cent. to 61.0 per cent. As a proof of the possibility of working commercially to a high standard, it was mentioned that eighteen batches of terebene made at Messrs. Howards' works, gave an average rotation



of  $0^{\circ} 29'$ , or a percentage of 2.7 for unaltered material. Sample D indicates that a pleasant smell is no indication of the purity of the terebene, whilst on the other hand, H, smelling slightly of turpentine, has a good polarimetric test. The whitest samples were G and J, which contain the largest amount of unaltered material. The presence of large quantities of unaltered material is referable to imperfect manufacture rather than to deliberate adulteration.

Pure terebene should, according to these indications, be almost, if not quite, colourless; of low rotation, and at the same time of agreeable odour and this latter may vary slightly according to the turpentine employed.

Origin	Sample	Colour	Smell	Rotation	Per cent. unaltered
British	A	White.. ..	Fairly pleasant	$1^{\circ} 5'$	5.9
"	B	Yellowish ..	Strong odour	$2^{\circ} 53'$	16.3
"	C	Slightly coloured ..	Fairly pleasant	$3^{\circ} 42'$	20.4
"	D	.. ..	Pleasant ..	$5^{\circ} 58'$	32.9
"	E	Nearly white	Pungent and unpleasant..	$7^{\circ} 6'$	39.2
"	F	Slightly yellow	Smells distinctly of turpentine..	$10^{\circ} 7'$	55.3
"	G	White.. ..	Trace of odour of turpentine	$11^{\circ} 3'$	61.0
Doubtful	H	Slight colour	—	$0^{\circ} 35'$	3.2
Foreign	I	Yellowish ..	—	$1^{\circ} 44'$	9.5
"	J	White.. ..	—	$10^{\circ} 25'$	55.8

In opening the discussion, Mr. Moss said he was glad the authors had written those papers, for he felt that a Conference held there would have been incomplete without some reference to terebene, seeing that they had now amongst them gentlemen who were authorities on the question—he meant Professors Tilden and Armstrong. (Cheers.) These eminent chemists had made complete examinations of turpentine, and had told them as minutely as it was possible to tell them, how they might manufacture pure terebene. As a manufacturer of terebene, he felt he must make some acknowledgment of what they had done in that direction. He found that the product varied, but whether the variation occurred by some unconscious difference in manipulation, or in the origin of the turpentine, he could not make out. He had always supposed he had been working upon the same kind of turpentine, yet he had noticed in the last lot he made, which he obtained from 12 gallons of turpentine, that 2 oz. of solid crystalline matter came over, which he supposed to be camphene; perhaps one of the gentlemen he had referred to would tell them what it was likely to be. (Hear, hear.)

Professor TILDEN said it was quite true, as Mr. Moss said, that he and his friend Professor Armstrong had given some attention to those matters, but if they had done one thing, they had shown that there was no such substance as terebene at all. Therefore, any process that might be referred to for the production of pure terebene was something which was not familiar to them. The point of their research was to establish the fact that terebene, so described with considerable and minute detail, was a substance which was a mixture of three or four hydro-carbons, and, further, that the proportions of those hydro-carbons varied considerably, according to the manner in which the operation of making that supposed substance was carried out. He should like to ask some manufacturers to give them information how they proceeded to make it. In the experiments made by Professor Armstrong and himself, they employed strong sulphuric acid for effecting the molecular change. In one respect their mode differed from the mode adopted by Reban. If he remembered aright, Reban treated the turpentine with successive doses of sulphuric acid, and re-distilled the mixture, until it was optically inactive. In their operation they separated the acidulous portion from the hydro-carbons before proceeding to distillation. Since the paper he had referred to, an article had appeared from M. Reban, in which he endeavoured to controvert these statements, but at present he had had no opportunity of going over the ground; but the only difference he pointed out was that he distilled the acid and the hydro-carbon together. From a pharmaceutical point of view, it was important to know what tere-

bene owed its therapeutic properties to. It was useless to talk about pure and impure terebene until they knew what was its composition. Optical inactivity was an important character, but it was not everything. Perhaps Mr. Moss, who was accustomed to operate on a considerable lot of turpentine with sulphuric acid, would tell them. Mr. Moss had also referred to the production of a crystalline substance. That crystalline substance they had separated, and showed it to be borneol, a variety of Borneo camphor, which differed from the natural kind in being optically inactive.

Mr. Moss explained that the "pure terebene" to which he referred was the pure terebene of pharmacy, such as was introduced last year by well-known therapists, which generally possesses the following characters—i.e. it boiled somewhere between  $155^{\circ}$  and  $160^{\circ}$ , was colourless, of rather pleasing smell, and optically inactive. That was what pharmacists called "pure terebene," and it was what he referred to, and which, he repeated, Drs. Tilden and Armstrong had taught them to prepare. He took turpentine and added vitriol, and let the mixture cool down and stand for three days. Then he carefully poured off the hydro-carbon from the tarry stuff which settled at the bottom of the vessel, neutralised it with carbonate of soda, and distilled with steam.

Dr. SYMES thought the words "pure terebene" were only used to distinguish it from the impure terebene of commerce. Before terebene was used medicinally there was an impure disinfecting terebene, the subject of a patent, and the phrase "pure terebene" had been adopted to show the difference between the two.

Mr. ALLEN saw no reason why the name should not be retained; it was perfectly understood what it referred to.

Mr. MARTINDALE believed he was the sinner who had given terebene its name "pure." He published in the Extra Pharmacopœia a short note of the substance, and there was an abstract in the *British Medical Journal* in 1882, showing that in Germany they had used it as an expectorant. He termed it "pure" to distinguish it from impure terebene, with which they were all acquainted.

Mr. PASSMORE asked where the patent referred to could be found. He had been unable to trace it in the Patent Journals. No reply was given.

Mr. UMNEY said he had prepared terebene, and had proceeded in the way described by Mr. Moss, but he had not made his final distillation with steam, and asked Mr. Moss how he did that, to which the reply was given that it was carried over with steam.

Professor ARMSTRONG said there was a want of uniformity in American turpentine, but the variation was noticeable between the samples shipped from the Savannah district and those shipped from other ports. As a comparatively small proportion was shipped from the Savannah district, the ordinary American turpentine was a fairly uniform substance. A definite substance to which the name of terebene could be given did not exist. The name remained for a mixture such as they had spoken of, but the danger arose that, directly they used a homogeneous name, they began to think they were dealing with a uniform substance.

Dr. TIDY said he had gone into the therapeutic action of terebene. Pure terebene had no action at all, while impure terebene had some action, so that medicinally it would seem better to have impure terebene. (Laughter.)

Mr. SCOTT briefly replied.

#### NOTES ON THE ESTIMATION OF EMETINE.

By H. W. JONES, F.C.S.

THE following abstract embraces the principal points of this paper.

In examining ipecacuanha we have the advantage of an excellent method recently suggested by Professor Flückiger; but with liquid preparations of the drug we have to work under less favourable circumstances. Emetine is generally regarded as easily suffering partial decomposition, as evidenced by the change in colour when it is exposed to light and air. Yet, for the purpose of examining preparations containing, like ipecacuanha wine, only a small amount of alkaloid, it is



necessary to evaporate a considerable quantity of liquid—200 c.c. or more.

Professor Flückiger's process\* appears to give complete exhaustion of the root, and the alkaloid is obtained in an unaltered condition. In all samples examined by the writer, the residue from the chloroformic solution was found to be imperfectly soluble in acidulated water; and in one case the total chloroformic residue from a commercial powder, in which oil may have been used in grinding, amounted to over 6 per cent. It is suggested to treat the residue from the chloroformic solution with water and dilute sulphuric acid, to filter through cotton-wool, and recover the alkaloid by means of chloroform and ammonia. It does not appear necessary to wash the acid solution with chloroform, as only a very small amount is removed.

Before the publication of the Flückiger process the writer made a large number of assays by the lime method; and as a result of comparative experiments, found the best mode of procedure to consist in treating the finely-powdered drug with one-fifth its weight of lime, and sufficient water to make the whole into a paste, allowing the same to dry spontaneously in a warm place, then rubbing to a fine powder the dried mixture and exhausting it with rectified spirit, treating the residue of this after evaporation with water and dilute sulphuric acid, filtering from insoluble matter, and lastly recovering the alkaloid by chloroform and ammonia.

Drying the mixture of ipecacuanha, lime, and water over the water-bath gives a horny mass, difficult to powder and still more difficult to exhaust. Instead of treating the drug with lime directly, the powder may be macerated in water acidulated with sulphuric acid for twenty-four hours; and the solution so obtained treated with lime in excess, evaporated on the water-bath, and the dry residue treated as previously described. It was found, however, that lower results were obtained by this modification. It was always found better to exhaust the lime residue with strong spirit in preference to chloroform, for it was noticed on several occasions when a trial with chloroform was made, and the powder packed in a small tube percolator, that after the chloroform had passed through it in a colourless condition spirit would still remove a further amount of matter soluble in chloroform, even when the marc was originally in a state of very fine powder.

Comparing the lime method as carried out by allowing the mixture of drug, lime, and water to evaporate spontaneously, results were obtained practically identical with those given by the Flückiger process. The latter method is, however, much easier to carry out, and, therefore, to be recommended in preference to the other.

In the volumetric estimation of emetine by Meyer's solution, the latter has generally been added directly to the liquid obtained by macerating the root in water or alcohol, acidulated with sulphuric acid, the alcohol being driven off before titration. We have here two causes at work likely to affect the result: the one being the presence in solution of substances other than emetine, and the other the varying amount of alkaloid with liquid. To note the difference observable in solutions of various strengths, experiments were made with pure emetine prepared from the crystalline hydrochlorate, and with faintly acid solutions it was found that the pure alkaloid required to be present in the proportion of 1 to 330 to give accurate results. Although a certain degree of dilution is necessary to ensure the correct amount being found, the volumetric estimation of pure emetine in solution is not attended with such discrepancies as occur with some other alkaloids, and instead of disregarding the difference due to volume, or of diluting to a given quantity after making a trial to determine the approximate present, a table of corrections was suggested for use when the alkaloid lay within certain limits. In addition to the table given in the original paper, experiments were quoted showing its application. The various high results obtained by the volumetric method appear to be principally due to the interference of foreign matter dissolved out of the root by the solvent employed. Thus, ipecacuanha has been frequently reported as containing 3 or more per cent. of alkaloid, whilst the average amount of emetine in good samples does not greatly exceed 1 per cent. The direct titration of the acidulated solution of the root with Meyer's solution, in the manner usually employed,

yielded in experiments quoted, and in which different volumes were operated upon, percentages varying from 1.7 to 2.17 per cent. for the same root, owing to the influence of impurities and bulk.

Experiments were made with pure emetine to see how far it could be recovered after treatment with lime in the manner employed for assaying the drug. Strong spirit was employed to exhaust the lime residue in the first instance, and the alkaloid was finally recovered with chloroform and ammonia. It was found that whatever action is exerted by the lime on the alkaloid, with proper exhaustion the original amount could be recovered; and as rather more was obtained than anticipated, no working loss being apparent, further small amounts of the same emetine were exposed to the heat of the water-bath for varying prolonged periods. It was found that after two hours residues distributed over the surfaces of small dishes gradually increased in weight.

The emetine recovered after treatment with lime, as well as that subjected to heat alone, gave when dissolved in acidulated water highly-coloured solutions; and experiment showed that a decided amount was removed by chloroform when shaken with the acid solution. By that means it was found possible to determine to some extent the amount of change which had occurred. In acetic solutions of emetine a similar alteration takes place, judging from the increase in colour which occurs on evaporation; and it was found after evaporation acetic solutions of the pure alkaloid, and re-solution, that results too low were obtained when titrated with Meyer's solution. Following the details given, the lime process was considered by the writer the best means of estimating the emetine in wine and similar preparations.

#### VINUM IPECACUANHÆ.

By J. C. SHENSTONE.

AFTER referring to the work of other pharmacists on this subject, the author stated that it had occurred to him to compare the behaviour of samples of the preparation made with natural wines, with various additions, and also with artificial substitutes of known composition.

Two samples of sherry were selected and analysed by Thudichum and Dupre's process, which showed that the wines were normal wines, containing rather a large percentage of acid tartrate of potassium; but after immersing the wines for twenty-four hours in ice, no deposition of acid tartrate of potassium took place.

One (A) sherry was a very good pale light wine, of sp. gr. 99.28, and with 16.25 per cent. of alcohol. The other (B) was a brown sherry of fuller flavour, containing 15.79 per cent. of alcohol, and had a sp. gr. of 99.48.

The extract was prepared from unbroken cortical portions of ipecacuanha, coarsely powdered, macerated in the acetic acid, and packed lightly in a cylindrical percolator, 1 lb. forming a column 8 inches deep. The first portion of percolate was of a dark-brown colour, but became straw-coloured after one gallon had passed. A little of this changed to a rich dark-green colour with ferric chloride, but after the percolate became colourless it was unaffected by ferric chloride, the process was therefore discontinued.

The evaporation of the percolate took thirty-six hours, and the extract did not afford a green coloration with ferric chloride; hence the ipecacuanhic acid had probably undergone decomposition, partly due to the absorption of oxygen by the ipecacuanhic acid.

The total weight of extract was 72 grains to each ounce of root used, and in each case it gave ample evidence of the presence of emetine.

The author confirms Boa's statement regarding the small quantity of froth which the artificial wine gives, and observed that a preparation made with artificial wine gave a more abundant froth. He also believes that oxidation influences the deposit, as was proved by making a sample of ipecacuanha wine, putting half into a corked bottle, and half into a flask, which latter was sealed hermetically after expelling the air by boiling. The portion in the bottle had commenced to precipitate after seven days; whilst there was no perceptible precipitate in the sealed flask after three months.

That the constituents of the wine play an important part would appear from the fact that none of the artificial wines







Although this increase is very satisfactory, the author has found that it is not desirable to begin to renew the bark of twelve-year-old trees, and he compares the results in such a tree with a six-year-old one, which shows that by renewing a six-year-old tree, 90 per cent. more of sulphate of quinine is obtained, and by working on a twelve-year-old tree only an increase of 12 per cent. takes place during the same period of two years, and while the total alkaloids in the shaving increased 39 per cent. in the younger tree, the older bark deteriorated 0.4 per cent.

Hybrid Ledger barks of the broad-leaved variety, holding cinchonine, are capable of great improvement by the shaving process. In the case of six-year-old trees of narrow-leaf variety, the increase of quinine sulphate by one year's renewal was from 4 per cent. to 6.62, while the broad-leaved kind increased from 2.9 to 5.19 per cent., or an increase in the former of 62 per cent., and in the latter of 79 per cent., the greater increase in the latter being due to the presence of other alkaloids, which appear to develop quinine in the growth of the tree.

Shaving old trees has not had a beneficial effect on Government estates. Both officialis and succirubra trees from sixteen to twenty-one years of age cannot bear the removal of the bark in this way; the renewal takes place slowly, and is found to be impoverished instead of enriched.

#### EXPERIMENTS IN MANURING CINCHONAS.

The effect of cattle manure upon a succirubra of seven years' growth, and on magnifolia bark, seventeen and twenty years old, is shown in the following table:—

	Quinine	Cinebo- nidine	Cinecho- nine	Amor- phous Alkaloids	Total
Succirubra, manured ..	2.29	3.78	1.94	.52	8.53
" unmanured ..	1.51	4.13	2.03	.32	7.99
Magnifolia, 1. manured ..	3.78	3.90	.28	.82	8.78
" unmanured ..	3.13	4.39	.55	.39	8.47
" 2. manured ..	2.59	3.49	1.21	.52	7.82
" unmanured ..	2.62	2.67	.67	.56	6.52

Manuring had the effect of increasing the amount of total alkaloids in the bark; and the quinine has received a gain of 52 per cent. in the succirubra, and 20 per cent. in the first magnifolia. In the older magnifolia bark the quinine remains about the same in quantity. The author considers that the higher value of the bark would cover the expense of the manure and the cost of its application to the land. The succirubra bark mentioned in the first experiment, if the unit were 4*d.*, would realise in the market 8*d.* per pound, whereas the bark of the manured tree would be worth more than 1*s.* per pound. The effect of manuring would be more apparent in crown and Ledger barks, with large proportions of quinine in the total alkaloids; in such cases manuring would be much more remunerative.

#### INCREASE OF ALKALOIDS WITH THE AGE OF TREES.

A question of much importance in cinchona cultivation is the age to which trees should grow before the bark can be profitably taken. The following results are a satisfactory reply afforded by the work of the author:—

Ledger Barks	Quinine	Cinchoni- dine	Other Alkaloids	Total
20 months ..	1.63	.66	2.77	5.11
2 years ..	2.18	.65	2.69	5.52
3 " ..	3.28	.55	2.90	6.82
3½ " ..	4.73	.93	1.81	7.46
4½ " ..	4.97	.79	1.78	7.54
5 " ..	4.57	1.02	1.46	7.05
5½ " ..	5.09	1.06	.55	6.70
5¾ " ..	7.54	.31	1.15	9.00
6 " ..	6.52	.76	.88	8.16
6½ " ..	5.97	1.18	1.00	8.15
8 " ..	7.59	1.16	1.45	10.20
20 " ..	5.58	1.24	.85	7.67

Red Barks	Quinine	Cinchoni- dine	Cinchonine	Amorphous Alkaloids	Total
2 years ..	.55	.72	1.20	1.22	3.69
3 " ..	.85	1.75	1.67	.99	5.26
3½ " ..	1.08	1.65	1.15	.61	4.51
4 " ..	1.13	2.03	1.79	.58	5.53
4½ " ..	1.12	2.64	1.78	.50	5.94
5 " ..	1.23	2.72	2.35	.52	6.83
5½ " ..	1.32	2.15	3.11	.53	7.21
6½ " ..	1.31	3.22	2.18	.71	7.42
7 " ..	1.70	2.69	2.28	.93	7.60
7½ " ..	1.78	3.18	1.97	.53	7.46
12 " ..	1.81	2.62	2.08	.90	7.41
16 " ..	1.03	.94	1.04	1.57	4.63
20 " ..	.78	1.13	1.37	.97	4.25

In the Ledger barks it will be noticed that there is a steady rise of quinine up to the age of between five and six years, after which there is no apparent increase.

In the second table of red barks the same fact is shown, that the bark has attained its maximum content of alkaloid when between five to six years of age. The quinine increases up to twelve years, but, as pointed out before, the renewed barks of the younger trees much exceed the slightly increased value of these older barks. The trees of sixteen and twenty years show a marked deterioration in alkaloids, although the bark is often in large thick fibrous pieces similar to the drug that was originally exported from the South American forests.

The effect of mould on bark has been studied by Mr. Hooper, and he shows that little, if any, effect is produced by prolonged contact with mould. A sample of powdered bark exposed to the influence of mould for ten months was not sensibly affected during that time, analyses at the beginning and at the end of the period being practically the same.

[The other papers read at the Conference are printed on page 352.]

## Obituary.

### JAMES GOODCHILD WAKLEY, M.D., M.R.C.S.

ON Monday, August 30, Dr. J. G. Wakley, who for twenty-four years filled the editorial chair of the *Lancet*, died at his residence, Heathlands Park, Long Cross, near Chertsey. The deceased gentleman has suffered severely for two or three years from an epitheliomatous affection of the mouth, which originated from a small ulcer caused by the rough edge of a tooth. The affection gradually spread towards the larynx, and ultimately, after much suffering, death resulted through asphyxia. Dr. Wakley was in his 61st year. He was the youngest son of the late Thomas Wakley, M.P. for Finsbury, the well-known coroner, and founder of the *Lancet*. He received his professional training at University College, and became an M.R.C.S. in 1849, and three years later took the M.D. degree of King's College, Aberdeen. This preliminary training, together with an excellent scholastic education, was intended by his father to fit him for the journalistic duties which were to be the work of his life. Consequently he never practised as a medical man, but when about thirty years of age he took a share in the editorial work of the *Lancet* along with his father, became nominal editor in 1859, and actual editor in 1862, the year of his father's death. This post he continued to hold, assisted latterly by his nephew, Mr. Thomas Wakley, junior.

Dr. Wakley's work as an editor was almost entirely confined to a careful and systematic supervision of the labours of his staff, and he has left a warm tribute to those who have assisted him. A country gentleman in his habits, he took great interest in field sports, and in the social condition of the agricultural labouring classes in his neighbourhood. As editor of the journal of which, with his brother, Mr. T. H. Wakley, F.R.C.S., he was half proprietor, he has done much to maintain its character as an organ of the medical profession.

JONES.—At Llanelly on August 29, in her 24th year, Nellie, the beloved wife of J. Wesley Jones, chemist, Apothecaries' Hall, Llanelly.



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# EDITORIAL NOTES.

## THE B.P.C. AND JONES'S PREPARATIONS.

THE new enterprise to which the British Pharmaceutical Conference has committed itself at the suggestion of its ex-President would be a somewhat serious affair if only it had been undertaken with definite ideas of the object sought, and with ability and means commensurate with the ambition evinced. Mr. Greenish evidently considers that the Conference has not sufficiently justified its existence. He complains even of "a growing tendency to a diminution of friendly intercourse," but he also judges that a smoking concert, however successful, ought not to be the ultimate outcome of the labours of such an association. Consequently he proposes for the Conference a piece of work which, in his opinion, would be "for the benefit of its members and of all who practise pharmacy." He sees and regards as "an evil assuming large proportions," a quantity of "factory-made proprietary preparations thrust upon the medical profession and unblushingly advertised," thus, he says, "sapping the foundations of true pharmacy, and at the same time depriving the pharmacist of the legitimate practice of his calling."

The evil to be dealt with therefore concerns the "factory-made preparations." The allusion is apparently intended as a sneer, though it is not very apparent why an article is necessarily worse because it is factory made, and it is a generally recognised principle of logic that a nickname is not an argument, though it often does duty for one. Why the proprietors of the factory-made preparations should blush when they advertise them is not explained. They are possibly obtuse enough to think they are engaged in a legitimate business.

But Mr. Greenish says they are "sapping the foundations of true pharmacy, and depriving the pharmacist of the legitimate practice of his calling." To some extent this is true, but the "evil" can only be regarded as an offence in the same sense as all competition is objectionable to the defeated competitor. True pharmacy is not a religion hedged about by dogmas which may never be changed or challenged without calling forth the charge of impiety. For all legal purposes it is simply a business, free to all with certain qualifications, which requires vigour and intelligence for its successful prosecution. It would be wise on the part of the leaders of the Conference to recognise this fact, instead of trying to resist the tendencies of the age. They might as well try to bring back the era when doctors prescribed draughts by the dozen, for which the druggist charged 9d. or 1s. each, as try to turn the prescriber from his system of prescribing the elegant and often very reliable factory-made preparations of the present day. The doctors who first ordered small bottles of concentrated medicines, "ten drops to be taken in a wineglassful of water," did a good deal towards sapping the foundations of the true pharmacy of fifty years ago; but chemists and druggists have had to adapt themselves to the change.

But we do not by any means oppose the formation of the committee; we only think the method on which it is proposed it shall work is a little too vague and impracticable. What is wanted is that some authoritative body shall make it its business to indicate formulæ for preparations of new medicines, which shall be a guide to perplexed dispensers when no better guide is available. This the Conference committee

can do with but few experiments, and to some extent they will thereby block the speciality-mongers, who, by the way, are to be found in some numbers in the inner circle of their own association. But it is to be regretted that this really useful and unambitious work should be prejudiced at the start by the declaration of an unreasonable and unjust war against persons engaged in a perfectly legitimate business, and by suggestions of future benefits for the practitioners of pharmacy, which there is no chance of realising, but which encourage the fatal expectation of some *Deus ex machinâ*, which cramps and paralyses the true business spirit.

### SQUILL A POISON.

THE death in March last of two young children from large doses of a cough mixture containing syrup of squills called attention to the danger attendant on the unrestricted use of this popular cough remedy. A long paper in the last two numbers of the *Lancet* by Dr. E. B. Truman, F.C.S., public analyst for the borough of Nottingham, detailing the results of his examination of the mixture which was used and some other experiments, recalls the circumstances of the case. The mixture which was used contained almond oil, 2 drachms; syrup of violets, 4½ drachms, ipecacuanha wine, 1½ drachm, and syrup of squill 1 oz. It caused pains in the legs, a livid appearance of the face, and quick respiration, followed in two cases by death. The post-mortem examination showed that the heart had ceased in systole, a phenomenon which only results in the case of three official drugs, viz. digitalis, squill, and green hellebore. The supposition was that digitalis had accidentally been dispensed in place of one of the ingredients of the mixture, and Dr. Truman was asked to make a chemical examination of the remaining portion of the mixture. He did so, but found no indication of the presence of digitalis, and subsequent experiments with syrup of squills, and other ingredients of the mixture, procured from the pharmacist who dispensed it, pointed to squill as being the toxic agent. Samples of the syrup were obtained from other sources, and these, along with the first syrup, ipecacuanha wine, tinctures of digitalis, and green hellebore and digitaline, were used in physiological experiments upon the heart of the frog. The result of the experiments shows that while the glucosidal residue from 30 minims of the fatal syrup of squill caused cessation of the heart's action in thirty-eight minutes, a similar quantity of another sample reduced the beats from thirty to ten in forty-seven minutes, and another had scarcely any action at all. Ten minims of tincture of digitalis reduced the number of beats from thirty-nine to eighteen in twenty minutes, and 110 minims of tr. verat. virid. reduced the number from fourteen to six in twenty-five minutes. A proportionate quantity of the fatal mixture also caused cessation of the heart's action. There was no doubt, therefore, that squill was the toxic ingredient of the mixture, and this is the conclusion that Dr. Truman arrived at. The syrup used in this instance had an intense and persistent bitter taste, like that of scillitoxine, the glucoside of squill which arrests the heart's action in systole. From his experiments Dr. Truman concludes that squill varies in strength, as the different effects of the three syrups show. The outer scales are stronger than the inner because they contain more scillain; the fresh bulb is stronger than the dried, volatile oil and Landerer's extractive being lost in drying; the bulb gathered in summer is stronger than that gathered in autumn—in summer the squill contains less sugar, and the increase of sugar in the autumn is probably the result of decomposition of the glucosides; the red variety is stronger than the white. Dr. Truman is also

of opinion (1) that squill is not a safe drug to use for routine, and especially popular, or lay, practice; (2) that being so variable and, when strong, so potent a drug, it should be looked upon by the profession as unsuitable for use until a solution of standard strength can be produced; and (3) that in the meanwhile its use should be discontinued. These conclusions, although apparently justified by the facts of the case, cannot be accepted straight off. Dr. Truman has undoubtedly done good service in going into the matter so thoroughly, but there are several moot points remaining. The squill which was used for preparing the syrup was not forthcoming, and we cannot therefore say whether it was exceptionally toxic, or whether the preparation was improperly made. Moreover, although the pink variety of squill is admitted by the Pharmacopœia, we do not recollect having ever seen it in commerce; certainly it is so uncommon that pharmacists would not use it if it were supplied to them. We are at one with Dr. Truman on other pharmacological points, and trust that some competent pharmacist will make a thorough chemical examination of the squills of commerce, and determine, if possible, a simple means of ascertaining its strength. An isolated case of poisoning does not justify the proposed discontinuance of the drug, but the caution is necessary for mothers who give their children half-teaspoonful and teaspoonful doses of the syrup when a few drops would act sufficiently as an expectorant. If there were a much weaker syrup—for example, one containing an ounce or two ounces of acetum scillæ in a pint of simple syrup—the likelihood of fatal cases occurring would be very small indeed.

### ANTIFEBRIN: THE LATEST ANTI-PYRETIC.

ANOTHER febrifuge has been discovered accidentally by Drs. A. Cahn and P. Hepp in a substance which was afterwards determined by a Dr. E. Hepp to be phenylacetamide, or acetanilide. From experiments made in the clinic of Professor Kussmaul, Strassburg, by Cahn and Hepp, acetanilide, which for convenience and commercial purposes has been re-named "Antifebrin," possesses four times the power of antipyrin. Administered in doses varying from 5 to 30 grains per diem, antifebrin manifests its influence in an hour, and reaches the maximum in four hours. It markedly decreases the temperature in fever cases, but does not affect the temperature of the healthy subject. It appears also to stop the excruciating pains which accompany acute rheumatism, and acts generally without causing the disagreeable symptoms or annoying after-effects which follow the use of many of the antipyretics which have been introduced of recent years. Moreover, it may be administered in comparatively large doses without any untoward results. One advantage, from a pharmaceutical point of view, which this new medicinal agent possesses over others of the same class is that its composition has been known for many years, and it can be comparatively easily prepared. Cahn and Hepp prepare it by heating aniline and glacial acetic acid together in a flask fitted with an inverted condenser for forty-eight hours, then distil when the acetanilide is obtained in an impure state, but may be purified by re-crystallisation from benzol or boiling water. So prepared, it is obtained as an odourless crystalline powder, which, according to Williams (*Journ. Ch. Soc.* xvii. 106), melts at 101° Cent., and at a few degrees higher has a specific gravity of 1.099. It distils at 295° Cent. The body is sparingly soluble in cold water, 1 part dissolving in 189 parts, but it readily dissolves in alcohol, from which it is not precipitated by the addition of water. It is also soluble in benzene, ether, and essential oils



crystallising from the latter in long needles. As its name denotes, acetanilide belongs to a group of bodies which may be regarded as amides which have their hydrogen partially or wholly replaced by phenyl. The formula of acetamide ( $\text{NH}_2\cdot\text{C}_2\text{H}_3\text{O}$ ) is in this case changed by the substitution of phenyl ( $\text{C}_6\text{H}_5$ ) for a hydrogen atom, the resulting compound being  $\text{NH}_2\cdot\text{C}_6\text{H}_4\cdot\text{C}_2\text{H}_3\text{O}$ , or phenylacetamide. Its formation from aniline and acetic acid may be regarded as a process of dehydration ( $\text{NH}_2\cdot\text{C}_6\text{H}_5 + \text{HC}_2\text{H}_3\text{O}_2 = \text{NH}_2\cdot\text{C}_6\text{H}_4\cdot\text{C}_2\text{H}_3\text{O} + \text{H}_2\text{O}$ ). This compound is a neutral body, and is not acted upon by sulphuric and hydrochloric acids, and with difficulty it is decomposed by strong potash solution. It is administered internally in wafers, or dissolved in an alcoholic menstruum such as wine. As antifebrin differs totally from any other febrifuge which has been introduced, it will be interesting to watch the clinical experiments which are being made with it. The present price of the compound is about 13s. per lb.

## BRITISH PHARMACEUTICAL CONFERENCE.

(Concluded from page 349.)

### CINCHONA CULTIVATION IN SOUTH AMERICA.

By DAVID HOWARD, F.I.C., F.C.S.

AFTER referring to the situation of Ceylon as not being so favourable for cinchona cultivation as Madras and Java the author stated that the latter countries afford better opportunities of studying the effect of cultivation on pure strains of the more valuable species, and some light can now be added from the natural home of cinchonas in South America.

Of the progress of the plantations in Bolivia, Schulkrafft's consular reports give some account, but no scientific information can be obtained except what is derived from the bark which reaches this country. This is of very fine quality, far superior to selected parcels of the uncultivated bark; a yield of 6 to 7 per cent. of sulphate of quinine is quite commonly obtained, and it is evident that the influence of cultivation on the calisaya is as favourable in its natural home as in Java. Two new species were referred to, the flowers are as yet unknown, but the habit of growth marks them out as distinct species. The first it is proposed to call *Cinchona Thomsoniana* after Mr. Thomson, who discovered it in the Central Cordilleras of the Columbian Andes. It has very large leaves, and grows with a rapidity equal to that of *succirubra*. The bark from trees two years old have already given 3.3 per cent. of sulphate of quinine, traces of cinchonidine, and 0.55 per cent. of cinchonine. The purity of the quinine and rapid growth make this a promising species for cultivation.

The other was discovered by Señor Pombo in the forests of Ecuador. The cultivated bark from a two-year old tree gave quinine sulphate 5.70, cinchonidine 0.43, no cinchonine or quinine. If the growth of this species is not too slow it ought to prove valuable.

These results compare well with the finest lancifolia bark, the calisaya Santa Fé, which yielded of sulphate of quinine 4.2, cinchonidine 1.90, and cinchonine 0.30.

The first samples of bark received from Jamaica in 1872 gave the following results:—*C. calisaya*, quinine sulphate, 2.2; cinchonidine, 0.7; and cinchonine, 0.2 per cent. *C. officinalis*, quinine sulphate, 1.8; cinchonidine, 0.1; and cinchonine, 0.1 per cent. *C. succirubra*, quinine sulphate, 1.4; cinchonidine, 2.5; cinchonine, 0.8 per cent.

The author showed how the yield of alkaloids can be greatly increased by careful cultivation; also that plants grown in Columbia have succeeded very well, as the following examples show:—*C. calisaya*, 3 years old, grown at 3,000 feet, sulphate of quinine, 4.32 = quinine, 3.24; cinchonidine 0.66; cinchonine, trace. *C. officinalis*, 3½ years old, grown at 3,000 feet, sulphate of quinine, 4.66; cinchonidine, 0.21; cinchonine, 0.06; quinine, 0.05. *C. succirubra*, renewed, 8 months without moss, grown at 7,500 feet, sulphate of quinine, 7.00 = quinine, 5.25; cinchonidine, 1.90; cinchonine, 0.67.

The *succirubra* is one of the finest specimens that Mr. Howard has tested, and he considers it an additional proof that red bark can be grown of far richer quality than what is usually received from the East Indian plantations.

It cannot be too clearly borne in mind, he states, that the

prospect of future profit in the cultivation of cinchona turns chiefly upon the cultivation of high testing bark. With favourable soil and climate the richer varieties grow as freely as the poorer, and a bark of higher quality may yield a profit when an inferior quality may cause a serious loss. In Bolivia and Java these most important requisites are found, and his opinion is that the same favourable results may be obtained elsewhere.

## NOTE ON COMPOUND SPIRIT OF ETHER.

By D. B. DOTT, F.R.S.E.

THIS note is simply intended to show that the Pharmacopœia directions for the preparations of this compound admit of a somewhat variable product; that the process is an extravagant one; and that the ultimate result is not such as is likely to commend itself to the more learned pharmacologists. Following the official instructions the distillate obtained from 36 fl. oz. sulphuric acid and 40 fl. oz. rectified spirit was neutralised and then exposed to the air for about twelve hours, but one-half was in a beaker, the other in a basin. The former portion was reduced to 3½ fl. oz., while the latter portion had diminished to 80 minims. That is to say, that from the above proportions of acid and alcohol we may obtain so small a yield as 160 minims, which is then mixed with ether and alcohol to form the compound spirit, the ether formerly prepared having been evaporated away. There seems to be something unsatisfactory in the process as a whole.

## Pharmaceutical Society of Ireland.

THE monthly meeting of the Council was held on Wednesday the 1st inst. Present: the President, Mr. J. E. Brunker, M.A., in the chair, the Vice-President (Mr. Draper), Sir George Owens, Dr. Collins, Dr. Montgomery, Dr. Evans, and Messrs. Doran, Hayes, Grindley, Beggs, and Simpson.

### THE SCHOOL OF PHARMACY.

A letter was read from Mr. George Lane McCormack, of Monkstown, urging the Council to establish a school of pharmacy. Mr. McCormack wished the Council to begin in a moderate way with a room, benches, bottles, &c., at a cost of about 60%, which might be got from the Government if need be. After the President, Vice-President, Mr. Grindley, Sir G. Owens, and Dr. Montgomery had expressed their opinion that it was the members of the Society and not the Council who are apathetic about the school, the Registrar was instructed to inform Mr. McCormack that the Council were quite willing to establish a school if it had the funds and the support of the members.

### EXAMINATION REPORTS.

A letter was received from the Privy Council enclosing copies of the reports of the Government visitor on the April and July examinations. The report on the April Preliminary examination stated that there were eleven candidates, of whom four were rejected, and that, with one exception, the answers of the seven who passed were indifferent. One was rejected in dictation only, and two were weak in this subject. None of the candidates had previously sat for this examination. Nine candidates presented themselves for the licence, of whom two passed. One of the unsuccessful ones had previously been rejected. The high percentages of rejections appeared to be due to poor answering generally, especially in the practical portions. Six failed to secure the required number of marks on the whole examination. Six failed to score minimum pass marks in each of three different subjects. Another of the same six failed in two subjects, and the remaining three in one. One candidate failed through being three marks short in one part of one of the subjects. Another who failed in one subject by half a mark only wanted but four marks of the minimum pass total.

In the report attention was called to the possibility of a candidate being rejected by half a mark, and a conference of all the examiners was recommended to discuss the general merits of each candidate before deciding to pass or reject him. The report concluded with a request to be allowed to report annually instead of quarterly.

Dr. Duffey's report on the July examination stated that for the Preliminary examination twenty candidates presented themselves; eight of these were rejected, seven failing in weights and measures. With two exceptions the general standard of answering of the successful candidates was only "middling," but there was a slight improvement in Latin. For the licence examination ten candidates came forward. Of these one failed in all the subjects; another in theoretical chemistry; and the third did not make the requisite total of marks. The average standard of answering was fair, ranging from 78 to 57 per cent.

After stating that the examinations were conducted as formerly, Dr. Duffey continues:—"I am not aware whether any application has as yet been made to your Excellency and the Privy Council to consent to the Society apparently exceeding the powers given it under their regulations [vide Regulations—Examiners IV, and my Report of January, 1886] in allowing one examiner, apparently from pecuniary considerations, solely to discharge the duties that three examiners were elected to perform. I am by no means of opinion that the subjects of chemistry and botany should be removed from the Preliminary examination. Indeed, apart from the laudable desire evinced by the Society to encourage their study in the schools of the country by including chemistry and botany in their Preliminary examination, the advantage of a knowledge of these subjects to a pharmaceutical chemist raises the question whether the maximum number of marks obtainable in these subjects as awarded by the present examiner—viz., 10 per cent. in each of the grand total—is commensurate with their relative importance to the other subjects of the examination. As the Council of the Society attaches weight to the system of marking it has adopted in the examination for the licence, it would seem desirable that a similar system should be laid down for the Preliminary examination, so that in both examinations there should be uniformity. The need of some definite standard was particularly evident at the last examination. In the event of a change of examiners, and in the absence of detailed instructions for their guidance, fixing the minimum passing number of marks in each subject, as well as the minimum total of marks on the whole examination to be obtained in order to pass, would, as in the examination for the licence, be an assistance to the examiner in carrying out the views the Council held as to the relative value it considered should be assigned to each subject, and the standard requisite. In the absence of such a guide the views held by an examiner might differ materially and from time to time from those of the Council. Besides, under the existing absence of system, the responsibility thrown upon the single examiner is, I think, too great."

The report concluded with a reference to the unsatisfactory accommodation for examination purposes, and a recommendation that better tables should be supplied.

The PRESIDENT said it would not be easy to deal with these reports after having merely heard them read once. Mr. Allen, who was not present, had prepared some resolutions on the subject, and the best course would be to refer the reports to a committee with a view to their being discussed at the next monthly meeting.

The VICE-PRESIDENT remarked that Dr. Duffey's reports were so valuable that the Council should do everything in their power to have them quarterly. There were several points of great importance in the present reports. The failure of the candidate by half a mark was a very serious matter. According to the old system, the examiners met, and if there was a doubt about a candidate the *consensus* of their opinions decided the matter. That might be reverted to with advantage. But he was not aware that they had ever had three examiners for the Preliminary examination.

PRESIDENT: No. There is an examiner appointed under the sanction of the Privy Council to examine in arts at the Preliminary examination. The Council afterwards included elementary botany and chemistry in that examination, and consequently the duty of examining in them was thrown on the arts examiner. Dr. Duffey raises the question as to whether he is entitled to examine in botany and chemistry.

VICE-PRESIDENT: He is perfectly competent to do so.

PRESIDENT: Not only that, but he was appointed on the distinct understanding that he was to examine in those subjects.

VICE-PRESIDENT: It is not a pecuniary question.

PRESIDENT: We can put ourselves in order by passing a resolution asking the Privy Council to sanction the present arrangement.

Dr. COLLINS remarked that in the cases of other medical bodies the usual practice was to refer the reports of the visitors to the examiners in the first instance.

It was ordered that the reports of Dr. Duffey should be referred to a committee of the Council, and also to the examiners, for their joint consideration.

#### MISCELLANEOUS BUSINESS.

A letter was received from Mr. Edward W. Allsom, dispenser to the Cork Union Hospital, asking if his certificate in practical pharmacy would be accepted by the Council, in respect of apprentices. The difficulty in his case was that he did not "keep open shop," and the requirements seemed to imply that he should before he could sign certificates. As the Council had previously decided that point the Registrar was directed to inform Mr. Allsom that his request could not be granted.

Donations were received consisting of the Report for 1844 of the Smithsonian Institution, Washington, and "Contributions from the Department of Pharmacy of the University of Wisconsin, No. 2," by Professor Power. Thanks were voted to the donors.

A report from the Law Committee was received.

A letter was read from the magistrates who presided at Kells Petty Sessions on the occasion when George Cooney and Maria Leonard were fined 5*l.* each for a breach of the Pharmacy Act in selling poisons, asking the consent of the Council to the fines being reduced to 1*l.* each, on the ground that the defendants being "traders of high character would not knowingly or wilfully violate the law, and that they were never likely to repeat the offence."

The PRESIDENT said the Society's inspector was entitled to a third of the 5*l.*, and if the penalties were reduced the Council would have to make up the difference to him, besides losing their own share of the original penalties.

Mr. DORAN thought it would be a very bad thing to reduce the penalties, if so parties would not prosecute.

Further remarks were made, in the course of which an instance was given of spirits of salts being sold in a whisky bottle with the whisky label attached.

The Registrar was directed to write to the justices stating that, having regard to the necessity of enforcing the law and the expense of prosecutions, the Society did not see their way to comply with their request.

The Law Committee also reported that on August 30, at Oldcastle Petty Sessions (co. Meath), Philip Gaynor, publican and seedsman, and Mrs. Hart, widow of an apothecary, were fined for breaches of the Pharmacy Act and Poisons Act, and that an adjourned case is also pending at Navan Petty Sessions.

On the motion of Mr. Hayes, seconded by Sir George Owens, Mr. Charles Evans was re-elected examiner in practical pharmacy until August, 1887.

The examiners' reports of the results of the Licence and Preliminary examinations in July were submitted. Ten candidates appeared for the licence, the following passed:—Albert H. Bell, 234 marks out of the grand total of 300; Walter E. Evans, 227; Henry G. Eaton, 200; J. B. Davidson Waugh, 183; Maurice B. McGrath, 181; Thos. W. Robertson, 179; and J. R. Cochrane, 171.

At the Preliminary examination twelve candidates passed and eight were rejected.

Some financial business having been disposed of the Council adjourned.

### The Chemists and Druggists' Trade Association of Great Britain.

A MEETING of the Executive Committee was held at the office of the Association, 23, Burlington Chambers, New Street, Birmingham, on September 1, 1886, at 9.30 A.M.

Present: Mr. W. G. Cross (Shrewsbury), President, in the chair; Mr. Joseph Maltby (Lincoln), Vice-President; Messrs. Andrews (London), Arblaster (Birmingham), Barclay (Bir-



mingham), Bell (Hull), Churchill (Birmingham), Davis (Leamington), Hampson (London), Harrison (Sunderland), Hart (Manchester), Holdsworth (Birmingham), Jones (Birmingham), Laird (Edinburgh), Mackenzie (Edinburgh), Paterson (Aberdeen), Symes (Liverpool), Walker (London), and the Solicitor of the Association.

The minutes of the previous meeting of the Executive were read and confirmed.

Communications were read from Messrs. Chapman (Scarborough), Jervis (Sheffield), Jones (Llanrwst), and Parker (Nottingham).

The President said again he had a painful duty to perform, in reminding them of the loss the Association had sustained through the death of Mr. William Southall. It had been his misfortune during the two years he had been president to speak of the death of a former member of the Executive Committee, but he could assure them that he approached the present sad event with very great sorrow. From the commencement of the Association their deceased friend, Mr. Southall, was a very ardent supporter of the institution and a very hard fellow-worker, and he felt that his death removed from them one whose counsel they always valued, and whose services they always appreciated very highly. It would be unnecessary for him to repeat the many expressions of regret at Mr. Southall's decease which had fallen from members of the trade, at the present sitting of the British Pharmaceutical Conference and elsewhere, or to enumerate the many references which had been made as to the intrinsic merits of Mr. Southall as a pharmacist. Eminent in every walk of his profession; he threw himself heart and soul into the work of the Trade Association. It was an additional source of regret that in this great year for Birmingham they should have lost one of their principal supporters. Had he lived to see the great gatherings which were then taking place in the town, he felt sure no one would have enjoyed them more or have entered more fully into the proceedings than Mr. Southall. He therefore moved—

That this Committee, on behalf of the Association, beg to express their deep regret at the loss they have sustained by the death of Mr. William Southall, Treasurer of the Association, a firm supporter of the Society since its formation. They likewise desire to accord their sympathy with his bereaved family.

Mr. **HOLDSWORTH** seconded the proposition, and referred to the stainless character and estimable qualities of the deceased gentleman, whom he had known for a period of about forty years.

The **VICE-PRESIDENT** and Mr. **ANDREWS** supported the motion, which was carried unanimously.

Mr. **HARRISON** moved—

That Mr. Holdsworth be appointed Treasurer to the Association for the ensuing year.

Dr. **SYMES** seconded the resolution, which was carried unanimously.

#### APPOINTMENT OF COMMITTEES.

The following Committees were appointed:—

##### *Law and Parliamentary.*

To consist of the officers of the Association and Messrs. Andrews, Barclay, Bell, Churchill, Davis, Hampson, Harrison, Hart, Jervis, O. Jones, W. Jones, Parker, and Symes.

##### *General Purposes.*

The officers of the Association and Messrs. Andrews, Barclay, Bell, Chapman, Churchill, Crook, Davis, Hampson, Harrison, Hart, Jervis, Jones, W. Jones, Parker, Symes, and Walker.

##### *Finance.*

The officers of the Association and Messrs. Barclay, Churchill, and W. Jones.

#### APPOINTMENT OF OFFICERS.

Mr. Henry Glaisyer was unanimously reappointed Solicitor to the Association for the ensuing year. Mr. W. F. Haydon was unanimously reappointed Secretary to the Association on the same terms as before. Mr. A. S. Wright was reappointed Assistant Secretary to the Association, and Professor Attfield as Analytical Referee.

#### PATENT-MEDICINE STAMPS.

After the reappointment of the present Bankers and Accountants, the **SECRETARY** read draft memoranda on the Patent Medicine Stamp Acts, which he proposed to submit to the Somerset House authorities, and then circulate among the members of the trade. The consideration of the same was taken in committee, and after some considerable discussion it was moved by Mr. **HARRISON**, seconded by Dr. **SYMES**, and unanimously resolved—

That the Urgency Committee be instructed to consider the Secretary's draft memoranda on the Patent Medicine Stamp Acts, and submit the amended draft to the Executive for approval. The memoranda as approved by the Executive to be submitted by the Secretary to the Somerset House authorities for their sanction, as arranged by the deputation from the Association, in their interview with the Board of Inland Revenue in April last.

#### LOCAL SECRETARIES.

The gentlemen who acted as local secretaries last year were, with some exceptions, reappointed.

Several letters were read from members of the trade, and the Secretary was instructed as to the manner in which he should deal with the same.

#### TRADE-MARKS APPLIED FOR.

**THE Trade Marks Journal** publishes the following notice:—"Any person who has good grounds of objection to the registration of any of the following marks may, within two months of the date of this journal, give notice in duplicate at the Patent Office, in the form 'J,' in the second schedule to the Trade Marks Rules, 1883, of opposition to such registration." All communications relating to patents, designs, or trade-marks to be addressed to H. Reader Lack, Esq., Comptroller-General of Patents, Designs, and Trade-marks, Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.

##### *From the "Trade Marks Journal," September 8, 1886.*

- "**SPIRIT OF BAY LEAF**," and other wording. An oval label, with a sprig of bay in centre; for spirit of bay leaf, for toilet use. By Osborne, Garrett & Co., 51 Frith Street, Soho, W. 51,063.
- Oblong ornamental label, with picture of a lady, supported by heraldic design on one side, and figure of a stork on the other; for aniline dyes, being mineral dyes (52,055), and for aniline dyes, being other than mineral dyes (52,055). By Badische Anilin & Soda-Fabrik, Ludwigshafen on Rhine, and Stuttgart, Germany.
- Picture of an iceberg, with "Iceberg" thereon and other wording for cod-liver oil, not for use as a specific for chilblains. By J. Jensen & Co. (Lim.), 10 St. Helen's Place, E.C., and in Norway. 52,102.
- "**BRITANNIA RELISH**," and other wording on label, with figure of Britannia in centre; for a sauce and a relish. By J. F. Corbin (trading as Corbin & Co.), 24 Rood Lane, E.C. 52,443.
- "**BEECHAM'S PILLS**," for a medicinal preparation for human use. By Thomas Beecham, St. Helen's, Lancashire. 52,721.
- Three club-like figures; for yeast (52,863). Also two diamond figures with a W in one and a P in the other, and an S between; for the same (52,864). By D. Wilkin & Co., Apollo Street, Finsbury.
- Two clasped hands, under the word "Unitas"; for cod-liver oil. By J. Forbes & Co., Pultneytown, Wick. 53,511.
- "**MARVELOUS CORN CURE**," and other wording on oblong label, with figures of two feet and a bottle thereon; for a patent medicine for the cure of corns by outward application. By G. S. Boutall, 52 Marchmont Street, Russell Square, W.C. 53,635.
- "**NIMROD**," for an ointment to be applied to horses. By Arthur Crabbe The Green, Wick, Gloucestershire. 53,745.
- "**HELMORRHOIDAL FRUIT PASTULES**," and other wording, on a label bordered with vine branches; for a medicine for human use. By Wm. Neats, 2 Railway Approach, London Bridge, S.E. 53,809.
- "**HUTTON'S ABSORBENT FOOT POWDER**," and other wording, on label; for an absorbent foot powder, being a preparation for the toilet. By Harry Hutton, 202 Broad Street, Birmingham. 53,860.
- "**PEARS'S UNSCENTED TRANSPARENT SOAP**," and price thereof, on an oval label; for soap. By A. & F. Pears, Great Russell Street, Bloomsbury and elsewhere. 54,002.
- Portrait and signature of the applicant; for liquorice sticks and cakes and articles of which liquorice is the principal ingredient, none of the said goods being for medicinal use. By John Hillaby, Tushelf, Pontefract. 54,031.

Figure of an ancient gateway; for mineral and aerated waters, ginger-beer and other effervescing non-intoxicating beverages. By Wm. Phillips, (trading as Phillips & Co.), North Gate Mineral-water Works, Bridg-north. 54,130.

Heraldic design: a stag's head over a shield, and words "Fide et labore" beneath; for chemical substances for use in pharmacy and medicinal preparations for human use (54,227); the same for perfumery (54,479). By Robert Gadd (trading as Chas. Gadd & Son), 1 Harleyford Road, S.E.

"NURSE MARTHA'S TEETHING-POWDERS," and figure of a child on a label; for teething-powders for children. By H. Thorburn & Son, 3 Newgate Street, Bishop Auckland.

"HEMORRHOIDAL WOOD FERN BALSAM," and other wording on label; for an ointment for human use. By William Neats, 2 Railway Approach, London Bridge, S.E. 54,483.

"RAVEN BLACK," and figure of a raven; for marking-ink. By Thomas Ordish (trading as T. Ordish & Co.), 108 Hatton Garden, London. 54,485.

"HOLMES' OZONE FLUID;" for a chemical preparation for sanitary purposes. By J. R. Holmes (trading as Joseph R. Holmes & Co., also as Holmes' Ozone Company), 139 Waterloo Street, Glasgow. 54,510.

"LONGA VITA BITTERS;" for "longa vita bitters," for medicinal purposes for human use. By Joseph Walshaw, 1 Manley Villas, Fazakerly, near Liverpool. 54,613.

A cross within indented square; for mineral and aerated waters, ginger-beer, and effervescing non-intoxicating beverages. By Samuel Buckley, Clare Street, South Shore, Blackpool. 54,670.

Picture showing Union Jack on shield, with a fairy behind blowing a balloon, and wording; for mineral and aerated waters. By C. G. Matthews, Bridge Chambers, Burton-on-Trent, and H. R. Matthews, 17 Great St. Helen's, London. 54,704.

A woman's head and helmet within a square design; for pills for human use. By C. P. Henry, 52 Addison Street, Nottingham. 54,717.

Figure of a demon bearing monogram "A. H.;" for aerated waters. By Abraham Hacker, 79 William Street, Broad Street, Birmingham. 54,745.

"BON FOOD" on scroll, a crown, &c.; for a prepared food for invalids, infants, and adults. By Thomas Armstrong (trading as the Bon Food Supply Company), 31 Charlotte Street, Old Kent Road, London. 54,769.

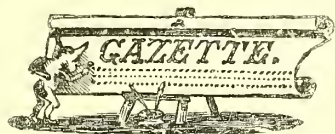
"COX'S GELATINE;" for gelatine. By J. & G. Cox, Gorgie Mills, Edinburgh. 54,770.

"VICTOR CASTOR-OIL;" for the same. By John S. Morris & Co., Victoria Bridge, Manchester. 54,826.

"MIDGERS" and other wording on label; for pickles. By Crosse & Blackwell, Soho Square, Middlesex. 54,954.

"ANTISEPTIC MARINE LINT;" for lint for medical and surgical purposes. By G. S. Pichin and H. Mawson (trading as T. Westhorp & Co.), 67 West India Dock Road, Poplar, Middlesex. 55,011.

"BOKOL;" for a preparation of malt containing alcohol. By Davis, Bergendahl & Co., 3 Indian King's Court, Quayside, Newcastle-on-Tyne. 55,012.



#### PARTNERSHIPS DISSOLVED.

EDMONDS and HILL, Walbrook, City, chemists' transfer agents and valuers.  
GREEN and PITT, Mincing Lane, City, brokers.

PROSSMITH, J., SON & CO., Newgate Street, City, perfumers.

TAYLOR and HEPPENSTALL, Attercliffe, Sheffield, aerated and mineral water manufacturers.

#### ORDER MADE ON APPLICATION FOR DISCHARGE.

GEORGE, JOHN IRVING, Wigton, Cumberland, chemist and druggist. Discharge granted on certain conditions.

#### RECEIVING ORDERS AND DATES OF PUBLIC EXAMINATION.

ATHILL, W. C. B., Snrbiton, Surrey, doctor of medicine. Oct. 15. Kingston.

BEST, GEORGE, Darlington, chemist and grocer. Sept. 15. Stockton-on-Tees and Middlesbrough.

STRAWSON, VINCENT (also trading as Strawson & Co.), Liverpool, chemist, druggist, and soda water manufacturer. Sept. 16. Court House, Liverpool.

#### FIRST MEETINGS.

BEST, GEORGE, Darlington, chemist and grocer. Sept. 16. King's Head Hotel, Darlington.

ROBINSON, JOSEPH, Deptford Broadway, Deptford, soap manufacturer. Sept. 16. Official Receiver's Office, 109 Victoria Street, Westminster.

#### NOTICE OF DIVIDENDS.

GLOYNE, THOMAS ALFRED, and JOSEPH EDWARD COCKER (trading as Gloyne & Cocker), Dewsbury, Yorkshire, oil merchants. First div. of 1s., Sept. 13. Mr. W. Dawson's, Union Street, Dewsbury.

NEWMAN, THOMAS HOBBS, Haselbury Bryan, Dorsetshire, aerated water manufacturer. First and final div. of 6 $\frac{1}{2}$ d., Sept. 11. Official Receiver's Offices, Salisbury.

## Trade Report.

*It should always be remembered that prices quoted in this section are as nearly as can be ascertained the lowest that are actually paid for bulk quantities. Considerable allowances have to be added in many cases before ordinary prices can be ascertained, and for many drugs it must be recollected the range of quality is very wide.*

MINCING LANE, September 10.

ACID (BORIC) has been reduced in price by 3s. per cwt., and can now be had at 38s. 6d. per cwt. for crystals, and 40s. 6d. per cwt. for powder.

ACID (CARBOLIC).—There is a very small inquiry and stocks are accumulating. Although the quotations have not actually changed, there is yet every indication that makers would be glad to accept a reduction.

ACID (CITRIC).—The market has assumed a rather firmer tone; business has been done at 2s. 1 $\frac{3}{4}$ d. per lb., and 2s. 2d. is quoted in some quarters. Messrs. Lambert & Strong, of Dunster House, E.C., request us to state that, contrary to the generally prevailing impression, they did not sell the 5 cwt. cask of Lawes citric acid at 2s. 1d. per lb. as reported in our last issue. This cask, we understand, was bought in.

ACID (NITRIC).—Messrs. Howards & Sons have reduced their price for s.g. 1.50 from 65s. 4d. to 65s. per cwt.

ACID (TARTARIC).—The London market remains entirely inanimate, and quotations show no change. It is worthy of note that while there is no prospect of improvement here, the Marseilles market bears quite a different aspect. The demand there is reported to be very good indeed, and holders are able to command a ready outlet at the parity of 1s. 8 $\frac{3}{4}$ d. per lb., c.i.f. (less usual discount).

CAMPHOR.—The market in crude is quiet, and the transactions remain limited. We quote Japan at 67s. 6d. to 70s., and China at 65s. per cwt. Advices from Higo, under date July 31, state that the arrivals from the interior during that month amounted to 1,350 tubs, which with the exception of last year, when the floods interfered, is about on a par with July arrivals in previous years, and the totals from January 1 last to July 31 are already within 2,000 piculs of total arrivals for the whole of 1885, notwithstanding which natives have been able to gradually advance the price. Buying has been confined almost entirely to two houses, and their pressure to buy has resulted in making natives very firm.

GLYCERINE has advanced in price, and the pure quality s.g. 1.260, is now quoted at 55l. per ton.

HEAVY CHEMICALS.—The following are the present positions of the more important articles:—In *Alum* there is rather more doing for export. Home trade remains quiet, and prices unchanged; loose lump, 5l. 10s.; ground in bags, 6l. 2s. 6d. per ton ex store. *Ammonia*.—*Carbonate* offers at 4d. per lb. less 7 $\frac{1}{2}$  per cent., but the demand is still very slow. *Muriate* remains unchanged, grey at 24l., white at 28l. per ton. *Arsenic* is in moderate demand, at 9s. 3d. per cwt. for powdered white in barrels landed. *Bleaching Powder* has advanced and is now held at 7s. 3d. per cwt., at which figure there is a moderate demand. *Borax*.—The price has been reduced, and English crystals are now quoted 26l. to 27l. per ton. *Cream of Tartar* remains languid, and firsts still quoted 124s. to 124s. 6d. per cwt. *Potash*.—*Chlorate* is somewhat cheaper, at 6 $\frac{1}{2}$ d. to 6 $\frac{3}{4}$ d. per lb., with only a moderate demand; *Bichromate* firm at 3 $\frac{1}{2}$ d.; and *Prussiate* dull at 7 $\frac{1}{2}$ d. per lb. *Sal Acetos* still slow of sale at 6d. per lb. *Sal Ammoniac* still quiet at 34s. seconds, and 36s. firsts. *Saltpetre*.—The demand is still inanimate. English refined, 21s. per cwt. for barrels, and 22s. per cwt. for kegs. *Soda*.—*Crystals* have been well inquired for, and are firm at 47s. 6d. per ton ex ship. *Ash* is in very small request at 1 $\frac{1}{2}$  to 1 $\frac{3}{4}$  per degree per cwt. landed. *Bicarbonate* in moderate demand at 7l. 5s. to 7l. 10s. per ton landed. *Caustic*, unchanged. *Cream*, 8s. per cwt.; white 60 per cent., 8s. 3d. per cwt. ex warehouse, demand slack. *Sugar of Lead* very quiet, but foreign white firm at 22s. 6d. per cwt. *Sulphur*.—There is little business doing in rolls, but flowers are quite out of



demand; prices are unchanged at 7s. 6d. to 8s., and 9s. to 10s. per cwt. respectively, according to make.

**QUICKSILVER.**—The importer has reduced his price to 6l. 16s. per bottle, but second-hand holders would probably sell at 6l. 15s.

**SALICINE.**—The price of this product has advanced considerably, the crop of willow-bark being reported very poor in quality and deficient in quantity. It is now held at 7s. 6d. per lb., and may shortly become dearer still.

**SANTONINE** is weaker, the wormseed crop in Russia being reported abundant; 7s. 6d. per lb. would now buy good Taschkend quality.

**SULPHATE OF QUININE.**—Prices remain unchanged, but there is rather more inquiry.

**CINCHONA BARK.**—There was a good assortment of barks offered for sale on Tuesday, although the supply of *Ceylon* cinchona was less important (so far as quantity is concerned) than we have been accustomed to lately. By far the greater portion of this *Ceylon* bark found purchasers at unchanged rates:—*Succirubra*, dust at 1½d. to 2½d.; branch, ordinary to fine bold, 1½d. to 4d.; chips, mixed with branch, medium to good strong, 2½d. to 5½d.; chips, 2½d. to 5½d.; spoke shavings, small, to fine bright, 2½d. to 10d.; root, 2½d. to 6d. for ordinary to very good, and 9d. for a superior lot. Quill, crushed, 5d.; dull stem, 1s. 1d.; renewed, a good proportion ordinary woody, 4d. to 5½d.; medium to good, 6½d. to 8½d.; fine rich lots, 9d. to 11d.; a few spoke shavings, 11½d. to 1s. 1d. *Officinalis*, branch, 2d. to 3½d.; strong bold, 4½d. to 6d.; chips, 3½d. to 11½d.; spoke shavings, fair to fine dry bright, 5½d. to 9d.; root, 7½d. to 1s. 1d.; renewed, weak, 7d. to 8½d.; medium to good, 9d. to 1s.; fine shavings, 1s. 3d. to 1s. 6d. *Hybrid* and all other sorts, dust at 5d.; branch, 2d. to 3d.; chips, weak, 2½d. to 4½d.; good, 5d. to 8d.; spoke shavings, 6d. to 11½d.; root, 1s.; quill, ordinary, 8½d.; renewed, 5d. to 1s. 1d. There was a good supply of *Java* cinchona (*Calisaya-Ledgeriana*), numbering 277 packages. The whole of this supply found ready purchasers at 2½d. to 7d. per lb. for ordinary to good bright branch, a few exceptionally bold lots realising 9½d. per lb.; chips, ordinary and mixed with quill, fetched 5½d. to 6d., and a fine to superior ditto, 1s. 2d. to 1s. 8d. per lb.; original root was sold at 9½d. to 1s. 6d., and renewed ditto at 1s. 2d. to 1s. 3d. per lb.

From *South America* there were some 534 packages offered, but only a small proportion of this was sold at 11d. to 1s. 4d. for druggist's quill (*Calisaya*) cultivated in Bolivia. The *South American* yellow flat *Calisaya* bark still continues to be inferior to the quill in alkaloidal strength. Pale barks of good quality, such as *Loxa* and *Huanoco*, sell at high prices, with much competition. The following statistics refer to the movements of bark in London for the first eight months of the year: they show little alteration from those published at the beginning of August; the stock has slightly increased to the extent of 500 packages during the month, and the deliveries have been well sustained, and amounted last month to 5,370 packages of all growths.

	1885	1885	1884	1883
Stock in London on Sept. 1 .. pkgs.	69,230	72,710	90,600	93,390
Imported in eight months .. ..	49,360	36,760	41,070	70,430
Delivered in the same period .. ..	42,240	44,520	50,210	43,710

The total shipments of bark from *Java* for the twelve months ending June 30 amounted to 1,531,356 lbs.

The latest mail advices from Colombo state that at that port no improvement can be reported, notwithstanding that but little is now on offer of anything but branch and inferior bark. The last public sale (August 12) comprised about 70,000 lbs. bark, the bulk consisting of branch, which realised 2½d., a fall of fully ½d. per lb. Quotations for high class bulks are practically nominal, for there are none on offer.

We hear from Messrs. Thormann and Co., of Rotterdam, that the public sales of *Java Cinchona*, announced to be held at Amsterdam on September 29, comprise 101,166 kilos., 1885 Government crop, by the Dutch Trading Company, consisting of—

77 chests	143 bags, about	15,863 K.	C. succirubra			
4.0	"	183	"	39,838	"	calisaya Schuhkraft
6	"	31	"	2,523	"	" anglica
—	"	511	"	40,936	"	" Ledgeriana
—	"	28	"	2,001	"	" officinalis
523	"	906	"	101,166	"	

And 283 bags *Ledgeriana*, by the Dutch-Indian Commercial Bank.

**CHAMOMILE FLOWERS.**—The new Belgian crop is now arriving; the flowers are good, owing to the fine weather which has prevailed.

**CONCENTRATED LEMON JUICE.**—The market is decidedly firmer. New juice, for shipment during the first three months of the coming year, is quoted at 27l. per pipe f.o.b. Messina, while 31l. 10s. is quoted for prompt stuff. The November-December crop of lemons in Sicily will be very small—shorter, in fact, than last year's—but that which will come in after January, 1887, is described as fair.

**ESSENTIAL OILS.**—*Bergamot* is now quoted at 8s. to 8s. 6d. per lb. The demand has been rather livelier lately, and sales are reported at the higher figure. The price for oil of the 1886-7 crop, if the rates now quoted by speculative sellers can be depended upon, will be very little, if at all, lower than that ruling at present. Oils of *Cinnamon* and of *Cinnamon Leaf* both remain quiet, and no transactions are reported. *Citronella* is offering for arrival at 3½d. per oz., but even this low price does not appear to tempt buyers. *Clover* is reported slightly easier in value. The English *Lavender* crop promises well. Some transactions in oil of *Lemon*, at prices ranging from 5s. 11d. to 6s. 6d., are reported, but no good oil could be at all had under the latter price. Higher prices may be expected for *Neroli*, which is in very short supply. Oil of *Orange* is quoted at 8s. 9d. per lb. *Otto of Rose* has advanced quite 2s. per oz.

**LIQUORICE.**—The commoner varieties are now cheap and in good supply.

**MANNA.**—The crop prospects in Sicily have experienced a sudden change. The last reports stated that the crop was the largest and finest for many years, and orders were solicited at very low prices. But on August 17 a heavy rain-storm washed the manna from the trees just as it was about to be gathered, and the crop consequently was practically an entire loss. As stocks at all points were extremely light, this intelligence has naturally had a considerable effect in hardening the markets. In Sicily holders refuse to sell at any price at present, hoping to realise their stocks at higher prices later on.

**TAMARINDS.**—The supply of West Indian fruit is very large indeed. A few kegs ordinary *Trinidad* were sold on Wednesday at 7s. per cwt.

**GUM ARABIC.**—There has been a steady tone during the week and holders are generally firm in their quotations. Some 2,000 packages of all kinds were offered in public sale on Thursday, but a large proportion consisted of ordinary classes of *Amrad* and *Ghatti*, and very little was sold, owners holding out for prices which buyers did not see their way to pay. In *Turkey* sorts no business worth noting has been transacted, but there has been a sustained demand for good *Aden* gums, which are worth 95s. to 97s. 6d. per cwt. *Barbary-character* realises 95s. per cwt.

**SHELLAC** is rather cheaper, both for second orange and button, and at the public sales last Tuesday only 330 chests out of a total of 472 were disposed of at a decline, although owners were willing sellers. First orange SG double-triangle out of condition sold at 55s. to 56s. Second orange, BP house, fair, 46s.; RPG diamond, fair, 46s.; ditto, livery, 45s.; RB, HK livery, 44s.; LR, diamond livery, 43s. Garnet, OCC, unworked, at 44s. Button, RBBL, 1 good first blood, 53s.; ditto, darker and out of condition, 51s. to 52s.; DG over VK, diamond 2, fair first, 51s.; M diamond BL, 1 good second, 50s.; RBBL, 2 circle, fine third, 45s. to 46s.

**TURMERIC.**—The prices are now so low that it is thought speculators may seize this occasion to manipulate the article and thus cause an artificial advance. *Madras* kinds are sell-

ing fairly well at late rates, finger sorts, fine, hard, bright, yellow, bulby at 12s. to 12s. 3d., pale, rather bold, 11s. to 12s., rough coated bold, 10s. 9d. to 11s., ordinary small dull coated, 10s. to 10s. 6d., mixed finger and bulbs, 10s. 9d. to 11s.; bulbs, fine hard, yellow, 11s. 3d., part split, 10s. 6d. to 10s. 9d.; ends, a few, 8s. to 10s. 9d.

**COCOANUT OIL** has advanced in price; *Ceylon* being held at 25l. 10s. to 25l. 15s. for pipes and puncheons, and 26l. for hogsheds. From *Ceylon* we hear that holders of dealer's oil are unwilling sellers, owing to the difficulty experienced in obtaining coprah through the heavy floods, which have almost completely stopped supplies. *Cochin* oil in pipes is held at 33l., and in hogsheds at 34l. *Mauritius* is a little firmer at 25l. 10s. to 26l.

**COTTONSEED OIL**.—*Crude Oil* is again dearer in London, but somewhat cheaper in Hull; *Refined* is slightly easier for spot stuff, but forward-delivery parcels are held at firmer prices. We quote *crude* in London at 17l. 10s., in Hull at 15l. 15s.; *refined*, in London, on the spot, 19l. 10s. to 20l., according to brand and packages, and 18l. 10s. per November–April: in Hull, 18l. 2s. 6d. for casks on the spot, and 17l. 12s. 6d. per November–April.

**LINSEED OIL**.—The market has been in a fluctuating condition since our last report, but closes steadily at the following rates:—On the spot here; pipes, waterside, 21l. 12s. 6d.; land, 21l. 15s.; barrels, 21l. 15s. to 22l., according to position; September, 21l. 7s. 6d.; October–December, 20l. 5s. to 20l. 7s. 6d.; November–December, 20l.; January–April, 20l. Hull, spot, 21l.; barrels, 21l. 10s.; September, 20l. 15s.; October–December, 20l.; January–April, 19l. 10s.

**OLIVE OIL**.—We hear from Naples that during the last fortnight good rains have fallen in most of the olive-growing districts, but at the end of August fine clear weather has set in, which, after the rains, is considered very beneficial to the olive crop. There have not been wanting the usual reports at this season of olive worm in the lower portions of the Gioja district, but according to reliable accounts it is nothing of any consequence, and on the whole the reports from the growing districts are very favourable, the olives being generally sound and large, and the fall of fruit thus far unusually restricted. Some more purchases have been made for Russian account, and latterly there has been a speculative demand for near deliveries, but on the other hand the export demand for England has been missing, and as the season advances there is more willingness on the part of holders to realise. In Liverpool *Neapolitan* oil has been sold at 37l. 15s. to 38l. per ton, while in London there have been transactions of *Mogadore* oil at higher figures, say 32l. 5s. to 32l. 10s.

**PALM OIL**.—Our market remains steady but unchanged at 23l. to 23l. 10s. for fine Lagos. In Liverpool the market is reported hardening.

**PETROLEUM**.—The oil market is slightly lower for American petroleum, but the Russian variety maintains its value, and in some instances even shows a slight advance. Messrs. S. C. Joyce and Co., of 35 Great St. Helen's, in their report of 2nd inst. state that the decline in American petroleum may be considered the work of the Bears, who are, as of old, always at war with the value of the goods that have been bought by the hard-working trade dealers. Sometimes these operators succeed, and sometimes pay, but are ever an annoyance, which is one of the penalties the trader has to suffer. There is very little oil afloat, and part of that put down for London is reported to be sold for the Continent. The import price is now well over values here for all positions, so no wonder some are struggling to get the oil here low, instead of shipping the goods from America. Stock in London on September 2 was 149,856 barrels, against 75,069 barrels at the corresponding period of 1885.

**RAPE OIL** is dull. English brown on the spot, 20l. to 20l. 5s.; September–December, 20l. 10s.; January–April, 20l. 15s. Refined English on the spot, 21l. 15s.

**TALLOW**.—The market is lower, and PYC on the spot may now be bought at 29s. Australian mutton, good to superior, is worth 25s. 9d. to 27s. 3d.; beef, good to fine, 23s. to 24s. 6d.

**TURPENTINE**.—There was a slight decline last week, but the market during the last few days has again been gaining strength, and the article closes at the following prices:—American spirits, spot is 27s. to 27s. 3d.; September–December, 27s. 3d.; January–April, 27s. 6d. to 28s.

**CASSIA LIGNEA**.—The present price for fair merchantable quality is 24s. 6d. per cwt.

**CHILLIES**.—Little is doing in the article, and in public sale on Wednesday a few lots only were sold at 29s. for rather dull coloured *Zanzibar*, being a decline of about 1s. per cwt.

**CLOVES**.—*Ambayna* are rather cheaper, 9d. to 9½d. having been accepted for fair to good quality; *Penang* cloves are also slightly lower. In *Zanzibar* variety there is no demand at all; a few small sales have been effected at 9½d. for good fair. For a parcel of some importance this price would not, however, be obtainable.

**GINGER**.—A change has occurred in the position of *Cochin* ginger, which is decidedly cheaper for partly cut descriptions, while the others maintain previous values. In sale on Wednesday the following prices were realised:—Cuttings, 17s. 6d.; lean, rough small and ends, 24s. 6d. to 25s.; medium and small rough, 28s. 6d. to 30s.; good washed, 48s.; small and ends, cut and part cut, 38s. to 39s.; medium and small, part scraped and part cut, 39s.; small part cut, 42s. 6d. to 43s.; medium and small part cut, 47s.; medium bright ditto, 52s.; a few lots bold, part cut, 70s. to 84s. *Japan* unchanged at 20s. for plump limes. *Jamaica* rather dearer, 2s. 6d. advance being paid in some instances. We quote common to good common, 38s. to 40s. 6d.; ordinary medium to medium, 41s. to 47s.

**MACE** quiet at the last decline in value. *Penang*, of rather ordinary, red appearance, is sold at 1s. 8d.; ditto *Singapore* at 1s. 7d.; and fair to good *West India* at 1s. 6d. to 1s. 8d. per lb.

**NUTMEGS**.—The demand is limited and rates are barely maintained. The latest sales include *Penang*, 80's at 2s. 5d. to 2s. 5½d.; 111's at 1s. 10d. to 1s. 10½d. *Trarancore*, 101's at 1s. 11d.; low broken, 6½d. to 7d. *West India*, 84's at 2s. 4d.; 97's to 92's at 1s. 10d.; 122's to 102's at 1s. 8d. to 1s. 9d.; 132's at 1s. 7d., partly wormy; 108's to 80's at 1s. 7d. to 1s. 11d.; 142's to 118's at 1s. 2d. to 1s. 6d.; in shell 92's to 74's at 10d. to 11d.; 100's at 9d.; 114's at 8d.

**PEPPER (Black)**.—The market is dull and the demand almost entirely wanting. From Singapore it is reported, under date of August 12, that dealers have sold more than they can deliver, and consequently the market is advancing. The bulk of the crops had been placed on the Singapore market by the day named.

**PEPPER (White)**.—The market is weaker and marks a decided decline in *Penang* variety, which has been sold at 11½d. per lb. In Singapore the market closes easier.

**PIMENTO**.—There is very little demand, but in the absence of sales no quotations can be given.

## THE AMERICAN MARKETS.

NEW YORK, August 28.

**I**N the home trade business continues very active, with a general tendency towards higher prices. The regular autumn trade will soon set in; a largely increased demand may be expected, and a further improvement all round is not unlikely. For export the inquiry has been fair, but not remarkable.

The prices sterling (in parentheses) are what the different articles would cost delivered in London, all market allowances, discounts, &c., being taken into account. Importers can, therefore, see at a glance the course of this market compared with their own.

**CUBES**.—The price in the market is 85c. (20l.) for sifted, and consumers have to pay it; 5 tons are on the way from Singapore, but as the "combination" controls all the supplies lower rates are not expected.



**BALSAMS.**—*Copaiba* is very firm at the recent advance. Maranhão, 33c. (1s. 6d.); Pará, 32c. (1s. 5½d.); Maracaibo, 30c. (1s. 4d.). *Peru* has advanced slightly, being quoted \$1.20. *Tolu* in large demand for manufacturing, and is held firmly at 34c. (1s. 6½d.). *Canada* not much inquired for; pure bright, in casks, nominally 25c. (1s. 1½d.).

**TONQUIN BEANS.**—The already enormous stock has been increased by the arrival of fifteen tons Augustura. There is no change in the price as yet.

**COCA LEAVES.**—Owners of Truxillo and inferior Peruvian leaves, being tired of holding for high rates are now forcing their stocks on the market, and very low prices are mentioned. Brown Huanoco 15c. (8½d.), and broken Truxillo 20c. (11d.), but without finding buyers.

**OIL WINTERGREEN** is very scarce, and is now held for \$2 (8s. 9d.).

**HONDURAS SARSAPARILLA.**—250 bales arrived in the *Carib*, and 47 bales in transit for London. The stock on the spot is now 1,300 bales.

**OIL PEPPERMINT.**—If readers of this column will refer to the report of July 2 they will find that it was predicted the opening price to the farmers would be about \$3.25. Of course it is a very difficult matter to say what the opening price of such an uncertain crop as oil peppermint would be; but that the price mentioned was not far off the mark has been shown by the course of events in Wayne county this week. The distillation of the old, or second year's, growth is finished, and all reports agree in stating the yield has been the poorest ever known. The whole of the oil marketed did not reach 2,000 lbs., and was all bought by strong holders at about \$3 to the farmer. This price, taking cost of packages, carriage, &c., is equal to 13s. net in London. The H. G. Hotchkiss brand is quoted to-day \$3.50 (16s.), but sales of about 70 cases were made from second hands at \$3.40 (15s. 6d.) to Hamburg, it is thought with the object of keeping the market down. The distillation of this year's plantings will begin next week, and on the yield from these will hinge the price for next year. Already trial distillations have shown poor results; and should these be confirmed later, high prices may be expected. Should the yield be good, the price to the growers will most certainly not go below \$2.75, for it does not pay them to cultivate (even with a good yield) for less, and they will hold sooner than sacrifice it. Strong efforts are being made by circular and cheap offerings to break the market, but without success so far.

**QUININE.**—There is no movement of any importance in this market. Good German brands are selling in 100-oz. tins at 50c. (2s. 1½d.). Offers from Europe of quantity at lower rates cannot find buyers. A parcel of 500 lbs. of a dark-coloured, earthy-looking substance, called precipitated quinine, has arrived here from South America.

**SPERMACETI** is still scarce. Only small deliveries to be had from the manufacturers. The market is 46c. (1s. 11½d.).

## Trade Notes.

**LEAD IN DRINKING-WATER.**—During one of the sessions of the chemical section of the British Association a paper was read by Dr. Tidy, detailing the results of investigations which he had made upon this subject in connection with Professor Odling and Mr. Crookes. They found that the presence of silica in water effectually prevented the water from dissolving lead. This is a matter of the utmost importance to all householders who are supplied with water passing through lead pipes, or stored in cisterns lined with lead, as it is well known that under such conditions drinking water frequently contains an appreciable quantity of the metal. Dr. Tidy's paper should be gratifying to the Silicated Carbon Filter Company, as they have all along constructed their filters upon the principles which Dr. Tidy and his colleagues advocate, viz. the combination of silica with the filtering medium in such a manner "as to ensure the fullest silication of the water." It has been proved, and can be easily verified by any chemist, that silicated carbon filters do prevent water from dissolving lead, and that water containing lead in passing through the filtering medium is freed from metallic contamination.



### Memoranda for Correspondents.

*Always send your proper name and address: we do not publish them unless you wish.*

*Write on one side of the paper only: write early; and devote a separate sheet of paper to each query if you ask more than one, or if you are writing about other matters at the same time.*

*If you send us newspapers please mark what you wish us to read.*

*Ask us anything of pharmaceutical interest: we shall do our best to reply.*

### Proprietary Right in "a Pure Drug" and Non-liability to Medicine Duty.

SIR,—We enclose for your information press copy of a recent inquiry addressed by us to the Solicitor of Inland Revenue, and the official reply. It is worthy, we think, of note, that the "possessive case" claim, at the head of the label is virtually (so far as liability to duty is concerned) overruled by the statement made at the foot of the label.

We are, dear sir, yours faithfully,

F. NEWBERRY & SONS.

*Solicitor of Inland Revenue, Somerset House, W.C.*

"DEAR SIR,—Please inform us if a bottle of acetic acid—sold for 3d.—and labelled as under, would in your opinion be liable to medicine duty.

"ADOLPH SCHWARZ'S CORN SOLVENT."

"Slightly wet the Corn, if hard, every night and morning until it shells off; if soft, every other night only. Warts to be treated as hard corns.

"This bottle contains a Pure Drug only."

"We are, dear sir, yours faithfully,

"F. NEWBERRY & SONS."

*Solicitor's Department, Somerset House,  
London, W.C., September 2.*

"GENTLEMEN,—In answer to your letter of the 30th ultimo, I have to say that if the article therein referred to, viz., Adolph Schwarz's Corn Solvent, is, as stated on the label, a pure drug, it is not liable to medicine-stamp duty.

"I am, gentlemen, your obedient servant,

"W. H. MELVILLE,

"Messrs. Newberry & Sons. Solicitor of Inland Revenue."

[There are several instances of simple drugs being claimed as proprietary articles, and being exempt from medicine-stamp duty because they are simple drugs. Bravais's Iron occurs to us at the moment. We may add here that among the labels for ordinary medicines which have been sent us these are some for simple drugs, such as flowers of sulphur, calcined magnesia, rhubarb, &c. These may be recommended on labels to any extent without incurring liability to stamp duty.]

### Concentrated Mixtures.

SIR,—“Observer,” in your last, refers to the “modesty” of “M. P. S.” in lowering his charges by 6d. Can we not say that the critic lays himself open to the charge of “cheeto,” in charging as much as a first-class London house? Chemists cannot afford to be considered grasping, and London rent, taxes, and other expenses are as well known to customers as to country chemists.

HEDER. (209/39.)

SIR,—Perhaps “Observer” may be pleased to know that the title of “M.P.S.” was obtainable “by exam.” between the years 1843 and 1868.

W. WILKINSON.

Cheetham Hill, Sept. 4.

**Liquor Santal is Flavæ Compositus.**

SIR,—The following recipe is a fairly good one for the above-named preparation. It is quite soluble in and forms a clear solution with water:—

Ol. santal flav. . . . .	200 minims
„ cubebe . . . . .	100 „
„ copaiba . . . . .	30 „
„ pimenta . . . . .	5 „
„ cassia . . . . .	5 „
Tinet. buch. . . . .	600 „
Infus. buch. co. (1 to 7) . . . . .	600 „
Aq. . . . .	300 „
Spt. vini rect. . . . .	780 „
Liq. potassæ . . . . .	600 „
Pulv. lap. pumic. . . . .	3 drachms. vel
Calc. hydrat. . . . .	1 oz.

Heat the liq. potassæ to the boiling-point, and pour into a bottle along with all the oils. Allow to stand for two days, shaking occasionally, after which add the water, and let stand for half an hour, and then add the “tr. buch,” “spt.” “infus. buch,” and shake well together. Lastly, add the “lime,” or pumice stone, and allow the whole to stand for three days, when it may be filtered through paper.

Yours truly,  
J. S. (207/57.)

**Co-operation in Buying Patents.**

SIR,—Many years ago I lived with a firm who bought some patents—such as Holloway's, Collis Brown's, and Beecham's—on the best wholesale terms, and then divided their purchase among their own circle of friendly chemists. This may be done still, if a sufficient number club together to prevent the stock from being burdensome.

HEDER. (209/39.)

208/64. *H. V. Knaygs*.—**Dutch Drops**.—This old remedy is the red oil which is obtained as a second fraction in the destructive distillation of common resin. A factitious kind—that, indeed, which is commonly sold—is made of balsam of sulphur (1 part) and turpentine (5 parts). Balsam of sulphur is made by boiling together 1 part of sulphur and 4 of olive oil until a brownish viscid fluid is formed. The drops are credited with diuretic, stimulant, and detergent properties. Any accounts as to its use must be sought for in the medical works of the last century.

Dr. J. Groves, in a pamphlet on Epidemic Cholera published in 1865, expresses himself strongly in favour of the usefulness of sulphur in intestinal disorders. His favourite prescription was:—

Sulphur. præcip. . . . .	4 oz.
Sodii bicarb. . . . .	4 oz.
Tr. lavand. co. . . . .	24 oz.
Aque . . . . .	72 oz.

The powders are well triturated together, and the tincture gradually added, then the water. *Dose*: Two teaspoonfuls every two or three hours, or oftener. Each dose would be equivalent to about 3 grains of sulphur. We are not aware of any other authority who recommends sulphur for arresting the action of the bowels in diarrhoea. It is generally considered that a portion of the sulphur is converted in the bowel into sulphuretted hydrogen, which stimulates the mucous secretion, and so produces a laxative action. For this reason it might, no doubt, arrest diarrhoea, which arises from the presence of irritating matter.

208/43. *F. Christopherson*.—“On the Continent the *Cardoon*, the *Treasury of Botany* states, “is regarded as a wholesome esculent, which in the hands of a skilful cook forms an excellent dish. The parts used are the stalks of the inner leaves, rendered white, crisp, and tender by blanching. These stalks are either stewed or form an ingredient in soups and salads during autumn and winter. The flowers have also the property of coagulating milk, for which purpose they are frequently used by the French after being gathered and dried in the shade.” It is aperient, diuretic, and aphrodisiac.

31/15. *Enquirer* asks:—“Can a person refuse to pay balance of 20*l.*, say, if he finds that in the first year the receipts do not come up by 200*l.* to what they were represented to be?”

[Unless you can prove that the seller has grossly deceived you as to the returns by making false statements regarding the business, it would be risky for you to refuse to complete your contract, which the payment of the balance practically amounts to. Obviously a man has no control over a business after he sells it to another, and cannot be held responsible for any falling off.]

208/54. **Work for the B. P. C.**—*W. G.* writes:—“Could you oblige me with a formula for Liquor Sennæ Dule. one in one? I suppose the B.P.C. formulary will be for such things as this and concentrated infusions.”

The following is understood to be Duncan's old formula:—

Senna . . . . .	15 lbs.
Boiling water . . . . .	5 galls.

Pack the senna which has previously been moistened with water in a percolator, and pass through it the remainder of the water, evaporate the percolate to 10 lbs. Dissolve in this 6 lbs. of molasses which previously has been evaporated to the congealing point, and add 25 oz. of rectified spirit, and sufficient water to make 12 pints. Evaporation may be saved by using a much less quantity of water, and adopting the method of re-percolation. A carminative, such as coriander, is generally added.

209/16. *Chemicus*.—On emigrant ships the doctor does the dispensing.

**DISPENSING NOTES.**

[The opinion of practical readers is invited on subjects discussed under this heading.]

**Salicylic Acid Mixture.**

205/49. *Delta* asks:—How should the following prescription be dispensed?

Acid. salicylic. . . . .	80 gr.
Syr. simpl. . . . .	3vj.
Aq. ad . . . . .	3vij.

[Rub the salicylic acid to a fine powder, gradually add the water to it, and lastly the syrup. The addition of an ounce or two of tragacanth mucilage would be an advantage, but the sanction of the prescriber must be got before that is done.]

30/25. *Menthol* asks how to prevent **Seidlitz Powders** containing sugar becoming damp in paper when kept for a time? He prepares them by drying 2 lbs. sodæ bicarb. (Howd's) and 6 lbs. sal rochelle, and adding thereto 21 oz. sugar and 4 drachms ol. lemon.

[The hygroscopic character of the powder cannot be diminished; it becomes more quickly damp with *icing sugar* than with *powdered sugar*, and it is better not to dry the bicarbonate of soda.]

Also, the best way to prepare the following mixture, which separates when the water is added, although 3j. rectified spt. is used:—

Menthol . . . . .	3ij.
Spt. . . . .	q.s.
Aq. ad . . . . .	3vij.

M. For external use.

[The only plan in this case is to add sufficient spirit. Menthol, like camphor, cannot be coaxied into solution except by recognised solvents.]

**An Erratic Mixture.**

Pot. iodid. . . . .	3ij.
Fer. pot. tart. . . . .	3ij.
Aq. ad . . . . .	3vj.

M. Sig.: 3ss. twice a day.

The above prescription has been prepared frequently at different places. I have prepared it about half-a-dozen times.



Three times at least out of the six the patient has been unable to take it, owing to its causing, immediately after being taken, a severe pain under both ears and a choking sensation at back of throat, with difficulty in speaking.]

The same effects were produced by several bottles supplied elsewhere, it sometimes happening, as in my own case, that at one time no bad effects were caused, while at another the unpleasant sensations were so bad that the medicine had to be discontinued. Could someone explain the cause?

CELT. (207/46.)

[The symptoms are apparently those of iodism. The dose of potassium iodide in this case is not excessive; but as it is prescribed along with a ferric salt, that salt will be reduced to the ferrous state by the iodide with liberation of iodine.]

#### A Powerful Draught.

SIR,—To-day I had the following prescription handed to me to dispense as a draught:—

Potass. iodid.	..	..	..	..	3iss.
Tr. aurant.	..	..	..	..	3ij.
Tr. cinchona	..	..	..	..	3ss.
M.					

No directions were given. On expostulating with the customer as to the largeness of the dose of KI, it was most strenuously affirmed that it was for one dose only. It had been dispensed before for a friend of my customer's, who (the friend) lent it to my customer. That was all the information I could get, and I refused to have anything to do with it. What course would you and your readers have adopted? The other day I received a written order for "two-pennyworth of cyanide of potassium," to be taken in water for the rheumatics!

175 Uxbridge Road, W.

A. H. HINDE.

#### Alteration of Prescriptions.

207/67. C. H. E. would like to know if the substitution of liq. arsenici hydrochlor. is justifiable in the following prescription?

Liq. arsenicalis (Fowler's)	..	..	..	3j.
Liq. hydrag. perchlor.	..	..	..	3j.
Aque ad	..	..	..	3iv.
M. ft. mist. 3j. t. d. s.				

[We shall be glad to receive opinions on this point. Liquor arsenicalis precipitates the mercury, and there is a possibility of the patient getting the whole of it in the last dose. If the prescriber cannot be consulted, would the dispenser be justified in following the course suggested by "C. H. E."?]

#### Effervescing Mixtures.

SIR,—Will someone kindly say how the following should be dispensed:—

Ferri et ammon. cit.	..	..	..	3j.
Acid. citricum	..	..	..	3ij.
Aque ad	..	..	..	3vj.
M. Sig.: No. 1.				
Potass. bicarb.	..	..	..	3iij.
Syr. limonis	..	..	..	3i.
Aque ad	..	..	..	3xij.
M. Sig.: No. 2.				

One tablespoonful of No. 1 to be taken together with two tablespoonfuls of No. 2 twice a day, at 10-11 A.M. and at bedtime.

W. K. (208/9.)

[This kind of prescription is not uncommon, and although it may appear that the prescriber has erred in placing the syrup of lemon in the alkaline mixture, it will be observed that there remains a slight excess of citric acid—viz.,  $1\frac{1}{2}$  grain in each dose. The prescription should be dispensed as written.]

#### Blaud's Pills.

SIR,—Powder the sulphate of iron, add the carbonate of soda, and rub together until they become about the consist-

ence of treacle; set aside for half an hour; rub together for a few minutes, and add about  $\frac{1}{4}$ th of a grain of pulv. tragacanth to each pill. No heat is required, nor is it by any means allowable. Carbonate of potash is generally ordered instead of the soda.

23 Grand Parade, St. Leonard's-on-Sea, T. M. THOM.  
September 9.

["T. G. A.'s" prescription contained bicarbonate of soda, and the expulsion of the liberated carbonic acid gas requires heat.]

SIR,—I have tried the original formula on several occasions, and have always failed in making a good pill. I now use an equivalent of dried subcarbonate, with the best result.

HEDER. (209/39.)

SIR,—How would you dispense the following:—

Quin. disulph.	..	..	..	gr. xvi.
Sp. aetheris	..	..	..	3ij.
Sp. ammon. ar.	..	..	..	3iv.
Tr. opii	..	..	..	℥℥xxx.
Aque ad	..	..	..	3viij.
Mft. mist. Capt. coch. fj. magn. 4tis horis.				

Yours truly,

SOLUS. (206/1.)

[Rub the quinine to fine powder in a mortar, and mix it with 7 oz. of water. Add the sal volatile, shake well, then add the rest of the ingredients and sufficient water to make up to 8 oz. A few drachms of mucilage would improve the appearance of the mixture.]

64/206. A. B. C. (Eastbourne) would like our "opinion on the following question:—Which article would it pay best to advertise, a 1s.  $1\frac{1}{2}$ d. box of pills, like Scot's for example, or a 2s. 6d. bottle of mixture, as Siegel's syrup for instance?" Really we cannot guess. The laws of successful advertising are mysteries which we cannot fathom. The most unlikely-looking thing, stupidly advertised as we should say, sometimes hits the mark straight, while another time a well-named and brightly-advertised product falls flat. We should as soon think of advising you whether to back red or black at Monte Carlo.

62/205. A. J. B. writes:—"Although rather late in the day, yet let me add my quota of thanks for the departure you have made from your monthly issue. I look forward to the Saturday, and hail our friend's arrival with delight. From the perusal of its pages I have derived much useful information."

#### C. H. B.—Nursery Hair Lotion.—

	Oz.
Quillaia bark	.. .. 1
Eau de cologne	.. .. 1
Rectified spirit	.. .. 3
Water	.. .. 7

Digest for seven days and filter into a mixture composed of the following:—

Almond oil	.. .. 2 oz.
Solution of ammonia	.. .. 1 "
Tincture of capsicum	.. .. 2 drachms
Jockey Club	.. .. $\frac{1}{2}$ drachm
Camphor water to	.. .. 20 oz.

Mix by shaking. The oil may be omitted, and glycerine used in its place. This lotion is to be used for washing the children's heads, and carbolie soap should be used along with it.

204/43. W. A. L.—Zoedone.—The tonic properties are due to phosphate of iron; a drachm of the syrup to a pint would be sufficient.

**PURE OXIDE OF ZINC** (HARRIS & CO.'S)

In 1-lb., 2-lb., 4-lb., 7-lb., 14-lb., and 28-lb. Boxes, 1/- lb. Special quotations to large buyers.

N.B.—EVERY PACKAGE HAS OUR SEAL UPON IT.

Great care is used in the preparation of our Oxide of Zinc, and it is superior to the ordinary Oxides sold as B.P., which frequently contain Arsenic and Sulphate of Zinc in sufficient quantities to prove irritating to the skin.

**PHILIP HARRIS & CO.,** Manufacturing Wholesale and Export Chemists, **BIRMINGHAM.****THE LAMELLÆ OF THE NEW PHARMACOPEIA** CAN BE OBTAINED IN BULK AND IN TUBES OF **SAVORY & MOORE***The Original Makers of Ophthalmic and Hypodermic Discs, and other Medicated Gelatine Preparations, And whose Discs were taken as the Standard by the Pharmacopeia Authorities.*

The following Extract from the "BRITISH MEDICAL JOURNAL," of February 6, 1890, page 257, speaks for itself:—

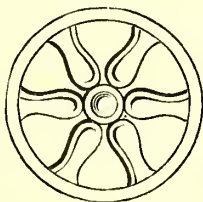
"Our attention has been called by Messrs. Savory & Moore to a statement made in a circular recently issued by another firm of chemists, the purport of which would be to deprive them of the priority of invention and manufacture of the medicated gelatine discs now extensively in use for ophthalmic and hypodermic purposes. The fact is on public record, that these ophthalmic discs were first prepared by Messrs. Savory & Moore in the latter part of 1843, when they were extensively employed by Mr. Ernest Hart in the ophthalmic department of St. Mary's Hospital, as well as in private practice. This settles the question."

The Hypodermic Discs were first made by SAVORY &amp; MOORE at the suggestion of Dr. ERNEST SANSOM in 1874.

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*Specimens of these Preparations have remained in the Museum of Kew Gardens during 23 years without deterioration.*

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WORLD FAMED

**BLOOD MIXTURE,**

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SEE INDEX, PAGES 11—13.

*Silver Medal at Inventions Exhibition 1885.*

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1798



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Citric Acid & Citrates.

Corrosive Sublimate.

Iodides of the Alkalies.

Iodoform.

Magnesia.

Mercurials, Calomel, &c., &c.

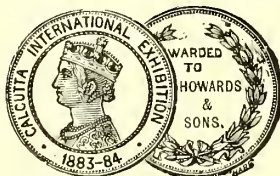
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For over 60 years in use as an excellent remedy in cases of  
**ACIDITY INDIGESTION, HEARTBURN, GRAVEL, AND GOUT.**

Sold by all respectable Chemists, in **LARGE-SIZED** Bottles (the 1s. size containing nearly  
*Double the quantity* usually sold at that price), at **1/**, **2/6**, and **3/6** each.

**CAUTION.**—Observe that the Signature of the Inventor is on every label.

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CORN AND WART PENCIL

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ALMOST TASTELESS.

The powerful curative properties of this Oil have been fully demonstrated by the most eminent Physicians in Europe. It is well put up in Cardboard boxes, with tasteful, attractive Wrapper, suitable for first-class Shop Window or Counter-case.

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**TO IMITATE THE ABOVE IS FELONY.**

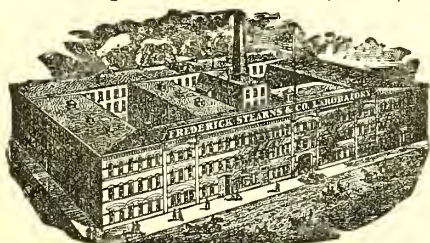
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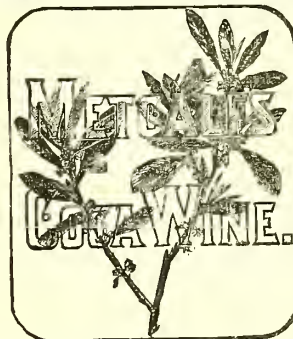
Pure Gingerine, Pure Capsicine, made with  
the Purest Spirit in Bond.

Tobacco Extract, Pure Kentucky, for Sheep  
Dipping.

Export Orders taken ONLY through European  
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**METCALF'S COCA WINE**

From Fresh Coca Leaves.

**A PLEASANT TONIC AND INVIGORATOR.**

Public Speakers, Singers, and Actors have found Wine of Coca (METCALF'S) to be a valuable tonic to the vocal cords, and also a sedative, allaying nervous fright without perceptible after-effect. It is agreeable to the taste, and can be prescribed for children or convalescents. Athletes, Pedestrians, Bicyclists, Tennis and Base Ball Players have found by practical experience that a steady course of Coca, taken both before dining and after any trial of strength or endurance, will impart energy to every movement, and prevent fatigue and waste from the system.

SEND FOR QUOTATIONS IN BULK.

THEODORE METCALF.] ESTAB. 1837. [FRANK A. DAVIDSON

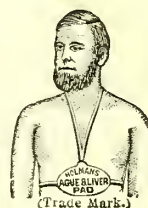
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39 TREMONT STREET, BOSTON, MASS., U.S.A.

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And the Retail Drug Trade throughout the World.

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(Trade Mark.)

**PRICE LIST.**

	Retail	Per doz.
Holman's Liver and Stomach Pad (regular size) ..	10	30/-
Holman's Liver and Stomach Pad (special size) ..	15	135/-
Holman's Infant Pad (for children's diseases) ..	7	67/6
Holman's Splenic Pad (for inveterate cases) ..	23	315/-
Holman's Kidney Pad (for the kidneys & bladder) ..	10	90/-
Holman's Pectoral Pad (for lung diseases) ..	15	135/-
Holman's Abdominal Pad (for female complaints) ..	42	378/-
Holman's Absorptive Body Plasters ..	2	22/6
Holman's Absorptive Foot Plasters, per pair ..	2	22/6
Absorption Salt (for medicinal baths) ..	1	7/6
Tablets (for constipation) ..	5	45/-

MADE AND PREPARED ONLY BY

**THE HOLMAN LIVER PAD CO.,**  
NEW YORK, U.S.A.

Trade supplied by JOHN M. RICHARDS, 46 Holborn Viaduct, London, E.C.

# The Mormon Elder's DAMIANA WAFERS.

The most Powerful

**INVIGORANT**  
Ever Produced.

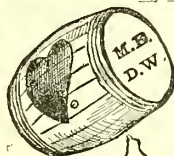
Permanently Restores those  
Weakened by Early Indiscretions.  
Imparts Youthful Vigor. Re-  
stores Vitality. Strengthens and  
Invigorates the BRAIN & NERVES.  
A Positive cure for *IMPOTENCY*  
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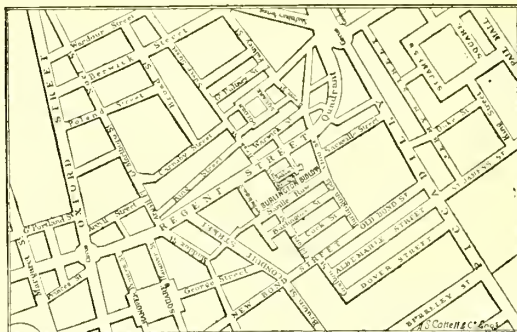
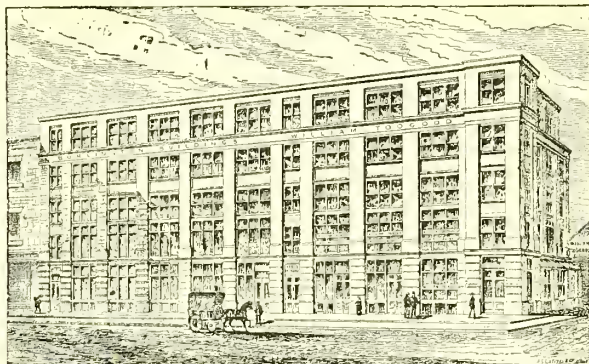
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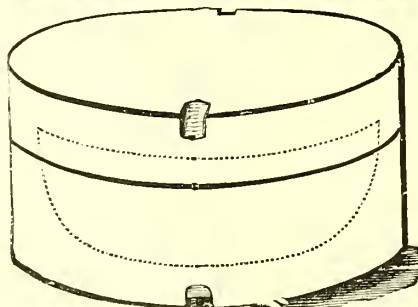
**WILLIAM TOOGOOD,**  
WHOLESALE AND EXPORT  
**GLASS BOTTLE MANUFACTURER**  
AND  
**DRUGGISTS' SUNDRYMAN,**  
HAS REMOVED FROM  
**35, 36 & 37 MOUNT STREET, GROSVENOR SQUARE, W.,**  
TO  
**BURLINGTON BUILDINGS,**  
**HEDDON STREET, REGENT STREET, LONDON, W.**

TOOGOOD'S IMPROVED PATENT  
**EARTHENWARE COVERED POTS**

*Are claimed to be the most perfect and convenient yet offered to the Trade, and possess the following Advantages:—*

1st.—An India-rubber Band passed vertically over the pot is kept in its place by the notches, and effectually secures the lid; for travelling this supplies a want greatly needed.

2nd.—The Covers being made quite flat, labels can be affixed with ease, and without creasing.



3rd.—The inside of the Pots being rounded or egg-shape, the contents can be entirely removed without waste.

4th.—Great attention has been paid to insure accuracy of contents.

**PRICES, per gross.**

$\frac{3}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$ oz.
18/-	18/-	18/-	20/-	22/-	24/-
2	3	4	6	8	oz.
27/-	34/-	42/-	54/-	66/-	

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Telephone No. 3834.

*William Toogood's Price Current of Glass Bottles, Measures, Earthenware, Druggists' Sundries, &c., will be forwarded post free upon application.*

**SPECIAL ATTENTION GIVEN TO SHIPPING ORDERS.**

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GLASS BOTTLE MANUFACTURERS,

381 to 383 KINGSLAND ROAD, LONDON, E.



Glass Bottles of every description, either Plain or Stoppered, made in White, Blue, Amber, Actinic Green, or any other colour required. Screw Nickel Capped Pomades, Honey Pots, Jelly Jars, &c., &c.

Makers of Opal Glass Covered Pots, in all sizes, which are far more Handsome and Cheaper than Earthenware.



H., R. & CO.'S PATENT GLASS SCREW STOPPERED FEEDING BOTTLES are the MOST PERFECT and Best to be obtained, and command a Ready Sale wherever introduced.

Special Attention given to Quality. Quotations Post Free to any part of the world on application. The above will be found the BEST and CHEAPEST HOUSE in the TRADE.

FOR  
DISPENSING, DRUGS,  
OILS,  
MINERAL WATERS,  
PERFUMERY,  
PATENT MEDICINES,  
&c., &c.

**GLASS BOTTLES**

MANUFACTURED BY

**KILNER BROS.**

FOR  
FEEDING,  
In GREEN &  
WHITE GLASS,  
and all  
Kinds of Fittings.  
Best Quality.

No. 3 GREAT NORTHERN GOODS STATION, KING'S CROSS, LONDON

HOME and FOREIGN BUYERS are invited to Correspond with us, as we have a very LARGE SELECTION to choose from.  
*Send for our Illustrated Price Current—a Revised Edition just out.*

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(I. ISAACS &amp; CO., Proprietors),

**OUR NEW SPÉCIALITÉ BOTTLES**

THE HANDSOMEST DISPENSING BOTTLES MADE.

We supply them, 6-oz. and 8-oz., 10/ per gross; 3-oz. and 4-oz., 9/ per gross. Those requiring a first-rate Bottle should see them before ordering of any other house. We also continue to supply our Second Quality Bottles, with name in scroll if required, 6-oz. and 8-oz., 8/ per gross; 3-oz. and 4-oz., 7/ per gross. These are first-rate value for the money. White Phials at greatly reduced prices, which may be had on application; also a sample bottle of any kind sent free.

Bankers—London & Westminster Bank. Established 50 Years.

Warehouse: 25 Francis St., Tottenham Court Road, London, W.C.

**DINNEFORD'S FLUID MAGNESIA.**

The most efficacious antacid and mild aperient for  
Delicate Constitutions, Ladies, Children, and  
Infants.

**DINNEFORD & CO.,**

Pharmaceutical Chemists,  
180 NEW BOND STREET, LONDON  
AND ALL WHOLESALE DRUGGISTS.

**SUGAR OF LEAD.**

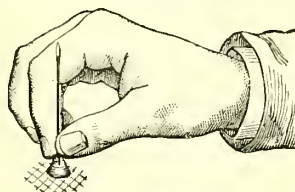
The finest quality of English-made SUGAR OF LEAD, packed in 1 cwt. Casks, delivered Carriage Paid on receipt of **31/6.**

Special Quotations for Large Quantities.

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SOLE AGENTS FOR DR. WARLDMONT'S CALF VACCINE

Tubes, 2s. each; Half Tubes, 1s. each. Pomade in vials, 5s.  
HUMAN VACCINE, from healthy children only, microscopically examined and source quoted. Three Tubes, two-thirds full, 5s.; Tubes one-third full and Lancet-charged Points, 1s. each; Pin-points, 1s. 1d. each. Eighteen Charged Small Points, 5s. Tubes two-thirds full (same as those mentioned above, but without source), in quantities for export, 45 per 100 Tubes. Pin-points uncharged, 1s. per dozen. Vaccinations daily, between the hours of 12 and 2, by the Consulting Physician, at the uniform fee of a guinea. P.O.O.'s (including postage, and crossed London and Westminster Bank), with orders, payable to  
EDWARD DARKE, Secretary.

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All Powdered and Crushed Articles are prepared in London. Absolute Purity is thus assured.

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ESTABLISHED 1812.

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"THILUM," for Rheumatism, Neuralgia, Wounds, Bronchitis, Chilblains (Broken or Unbroken).

"OMUM CARPOOR," for Indigestion, Cholera, Colic, Flatulence, Dysmenorrhœa.

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"HIPPACEA," the Stable Requisite for Broken Knees, Cracked Heels, Sprung Tendons, Mange, &c.

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N.B.—Agents required everywhere. Good terms if references satisfactory. Correspondence in English, Spanish, French, German, and Italian.



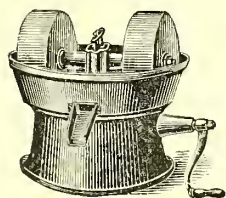
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May now be had from all Wholesale Druggists in 1-lb., 5-lb., & 14-lb. tins, & in Kegs of 28 lbs., 56 lbs., & 112 lbs.

**AT GREATLY REDUCED PRICES.**  
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Drug Mills, Tincture Presses in Wood and Iron, Edge Runners, Mixing Machines, Pan Mills, Paint and Colour Grinding Machines, &c.

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THE ONLY  
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THE N. C. Cos. PACKAGES HAVE STOOD THE TEST FOR MANY YEARS, AND CAN  
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KEPT IN STOCK BY ALL WHOLESALE DRUGGISTS &c.  
SEE THEIR PRICE LISTS.

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Glass Paper, Emery and Glass Cloth; Emery, Black Lead, Emery Wheels Pumice,  
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Prepared expressly for Oakley's Patent India-Rubber Knife Boards, Buff Leather Boards, and all the Patent Knife Cleaning Machines. Sold in Canisters  
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For Cleaning and Polishing Silver, Plate Glass, Marble, &c. Tablets, 6d. each.

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A Magic Pomade for cleaning Brass, Copper, Tin, Pewter, Britannia Metal, &c. Never becomes dry and hard like other Metal Pastes.  
Tins 1d., 2d., 3d., and 6d. each.

## WELLINGTON BLOCK BLACK LEAD,

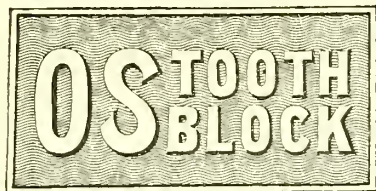
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Loose, without Boxes.

No. 1.  
In Patent Metallic Boxes,  
retail 1s.

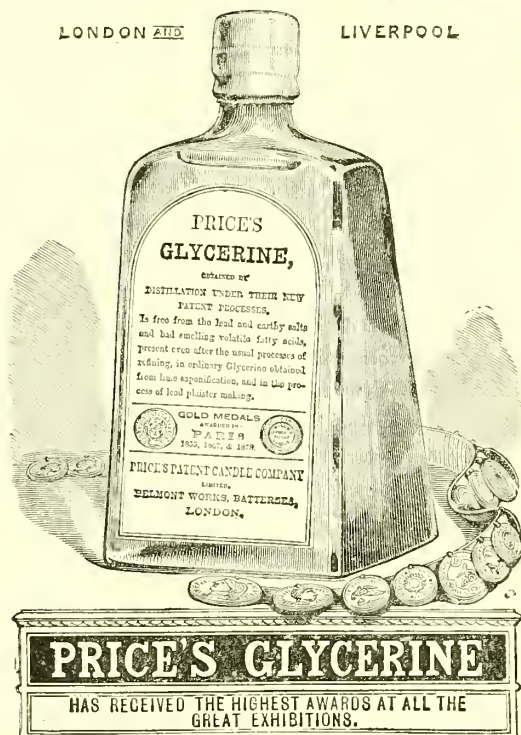
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In Crystal Caskets,  
retail 2s. 6d.

**OVER 1,000 TESTIMONIALS.**

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# SAVARS TOOTH PASTE

This is a perfect Tooth Paste. Elegant and useful. Its perfume is delicate, its texture firm and smooth.

In Blue Glass Pots, with Eastern label.

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ARE THE BEST AND MOST ECONOMICAL.

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12 TABLETS, weighing each about 5 oz., price 3/0 per box.

6 TABLETS, " " " price 1/9 per box.

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POWDER OR PASTE

IS THE BEST DENTIFRICE.

It is scientifically prepared by a Dental Surgeon, of large practice and great experience, and is intended to supply a long felt want, viz., a Preparation that will thoroughly cleanse the Teeth, and at the same time help to preserve them. As a stimulant to the Gums, and a preservative of the Teeth, Rozalium is not to be surpassed; it gives to the Teeth a pearly whiteness, to the Gums a healthy rosy colour, whilst it prevents decay by neutralizing the acids which accumulate between the Teeth, and imparts to the Breath a most delicious fragrance.

In Boxes, Pots, and Bottles, 1s. 6d. and 2s. 6d.

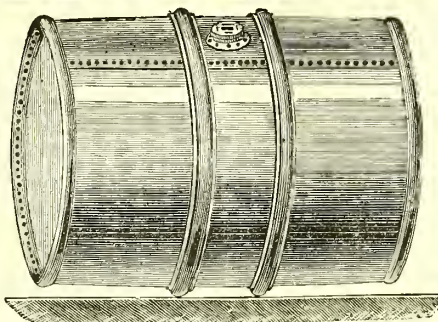
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**J. W. MARTIN, Dental Surgeon,  
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MANUFACTURERS OF  
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 ENAMELLED, PLAIN, AND DECORATED  
**TIN CANISTERS AND BOXES,**  
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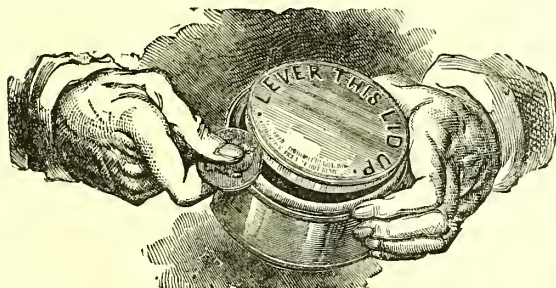


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IRON BARRELS,  
 CAPACITY 40 TO 120 GALLONS  
 AS PER ILLUSTRATION.

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Boxes ready made up, or the Patent Tops only (ready for making up), are supplied.

**SELF-OPENING TIN BOX COMPANY**

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These large Iron Casks, similar to sketch, can be handled with equal facility to wooden barrels, and, owing to their strength and durability, can be used over and over again for an indefinite period. They are perfectly liquid tight, being tested at a very high air pressure, and, unlike wood, do not absorb any of the contents. They are all fitted with interchangeable screw hungs, and can also be fitted with screw plug in head, for draw-off tap.

They are specially adapted for all kinds of Chemical Products, Sulphuric Acid, Glycerine, Spirits, Oils, Turpentine, Petroleum, Benzoline, Varnishes, Tar, Naphtha, Mineral Extracts, and Inflammable Liquids of every description.

We are making them in three qualities, "Black Iron," "Lead Coated," and "Tinned."

PRICE LIST ON APPLICATION.

**THE NEW TIN BOXES** for all kinds of Hermetically Sealed Preserved Foods, DRUGS and CHEMICALS.

**THE NEW TIN BOXES** are as cheap as the ordinary Boxes, require no soldering up, and can be opened with a penny piece.

**THE NEW TIN BOXES** are being adopted by the largest Food-preserving Houses and CHEMISTS, to whom references can be given.

**THE NEW TIN BOXES** are also perfect for Tea and Coffee Canisters, Biscuit Boxes, Confectionery, Paints, Oils, Varnishes, Soaps, &c.

**THE NEW TIN BOXES** are described by the *Times*, *Standard*, *Chronicle*, *Illustrated News*, *Engineer*, *Grocer*, *Oil and Colourman*, and *Press* generally, as the "neatest and most elegant invention ever made."

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SEALING WAX  
 QUILLS·QUILL PENS  
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 STATIONERS' SUNDRIES  
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**G F S**  
 SUPERIOR GUARANTEED SUPERIOR QUALITY.  
 CONCENTRATED  
 EXTRA STRONG.  
 EXTRA PALE.  
 SIZE

More economical than ordinary Size; more readily prepared for use.  
 In 1 lb. Packets, in Boxes of 28, 56, and 112 lbs.

**GEORGE FARMILOE & SONS,**

Lead, Colour, and Varnish Merchants,

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**CHUBB'S Best SEIDLITZ POWDERS**

—Full Weight—Loose, at 7s. per gross; in lift-off boxes, 7s. 6d., and in hinged boxes, 8s. 6d., per dozen.

**CHUBB'S Extra Scented VIOLET POWDER**

(WARRANTED PURE STARCH POWDER),

In 1d. Boxes, 6s. gross, and 2d. Boxes, 11s. gross, and in 1/4-lb. and 1/2-lb. Packets, 10d. per lb.

**CHUBB'S Pre-  
 pared FULLER'S EARTH**

In 1d. Boxes 5s. gross, and 2d. Boxes, 9s. gross, and in 3d. and 6d. Round Boxes, 1s. 6d. and 2s. 6d. dozen.

SUBJECT TO 15 PER CENT. DISCOUNT FOR CASH.

May be obtained through all the Wholesale Houses, or direct from  
**CHUBB & CO., 29 OLD ST., LONDON, E.C.**

SPECIAL QUOTATIONS FOR LARGE QUANTITIES.



**THE SCOUR  
IN LAMBS CURED  
BY  
THE DEVONSHIRE  
COMPOUND.**

A distinct preparation from the Devonshire Oils.

In Bottles, 2/-

**ESTABLISHED 1830**

**CORNER'S PINE'S**

**SOLD EVERYWHERE**

**FOR CATTLE HORSES COWS CALVES SHEEP LAMBS DOGS &c.**

**THE GREAT REMEDY FOR ACCIDENTS AND ANIMAL AILMENTS.**

**MANUFACTORY WELLINGTON, SOM.**

**DEVONSHIRE OILS**

**PRICE 2/-**

**CORNER'S  
FAMILY  
EMBROCATION**

**CURES—**  
Sore Throats,  
Colds and Pains in  
the Chest,  
Lumbago,  
Scalds, Burns,  
Chilblains, Sprains,  
&c., &c.  
**1s. 1½d.**



BY SPECIAL  
APPOINTMENT.

**SPRATTS PATENT  
MEAT "FIBRINE" VEGETABLE DOG CAKES**

(WITH BEETROOT).



BY SPECIAL  
APPOINTMENT.

**DOG MEDICINES** for the Cure of Distemper, Worms, Mange, Eczema, Ear Canker, Rheumatism, and the various other Canine Diseases. Full List and Pamphlet on Canine Diseases, post free.

**"COMMON SENSE OF DOG DOCTORING,"** price 6d.

**DOG SOAP.**

**LOCURIUM.** Price 6d. and 2s. per Bottle, retail. A Patent Vegetable Oil, curing Sore Feet in Dogs, Cracked Heels, Broken Knees, or Sore Backs in Horses; and Sores, Bites, and Wounds of all kinds either in man or beast. Small Pamphlets on Canine Diseases supplied free for distribution.

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**HORSES.—LIEUT. JAMES' BLISTER**

(Manufactured by R. J. JAMES, the Grandson of the Inventor).

THIS CELEBRATED BLISTER IS NOW OFFERED TO THE TRADE AT THE FOLLOWING REDUCED PRICES:—			
1 oz. pots from	14/- per doz. to	12/6 per doz.	1 lb. pots from
2 " "	21 5 6 "	£1 3 0 "	£4 4 0 per doz. to
4 " "	2 8 0 "	2 4 0 "	7 16 0 "
			£4 0 0

Observe the Trade Mark.—"A Horse's Head on the top of each Pot, and the signature, R. J. James."

Wholesale Agents, BUTLER & CRISPE, 4 Cheapside; NEWBURY, 37 Newgate Street; MAW, SON & THOMPSON, 11 Aldersgate Street; HAYES & CO., Dublin; GOULDING, Cork; FOGGITT, Thirsk; and SANG & BARKER, Edinburgh. Agents for the Colonies required. Apply, with reference, to R. J. JAMES, South Retford, Notts.

**JAMES v. JAMES.**—LORD ROMILLY, the Master of the Rolls, on February 23, 1872, declared "that I had an equal right with other members of the Inventor's family possessing the receipt to make and sell this Blister."—R. J. JAMES.

**OKELL'S ORIGINAL  
MONA BOUQUET**

Retail, 1/ 1/9, & 3/6; Wholesale, 7/ 12/ & 22/6 per doz.

This much-admired Perfume (first introduced by the late Joseph Okell) may be obtained from the leading Patent Medicine Houses, Wholesale Druggists, and Druggists' Sundry Dealers.

Sole Consignee—THOMAS WEST, 59 and 61 Chester Road, Stretford, Lancashire.

Special Agents—B. G. LENNON & CO., London, and Port Elizabeth Cape Town, and East London, South Africa.

**TO DENTISTS AND CHEMISTS.**—Every description of Artificial Teeth made at greatly reduced charges. Best work and best materials only.

An Upper or Lower Set, inclusive of Teeth Rubber, &c., £1 1s.  
Ditto, ditto, on Platina, £2 2s.

Send for Price List.

Twenty years' experience in mechanical work.

LESSONS GIVEN IN MECHANICAL DENTISTRY.

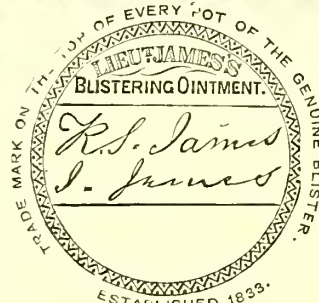
F. BUCK, 6 Hanover Place, Upper Baker Street, London, N.W.

**ESTABLISHED 1833.  
HORSES.—LIEUT. JAMES' BLISTER.**

**CAUTION.**

The annexed Label is at the top of every Pot of the ORIGINAL and only GENUINE BLISTER.

The Messrs. Barclay & Sons, 95 Farringdon Street, London, and Messrs. Raimes & Co., Edinburgh, are now and have been Agents 52 years.



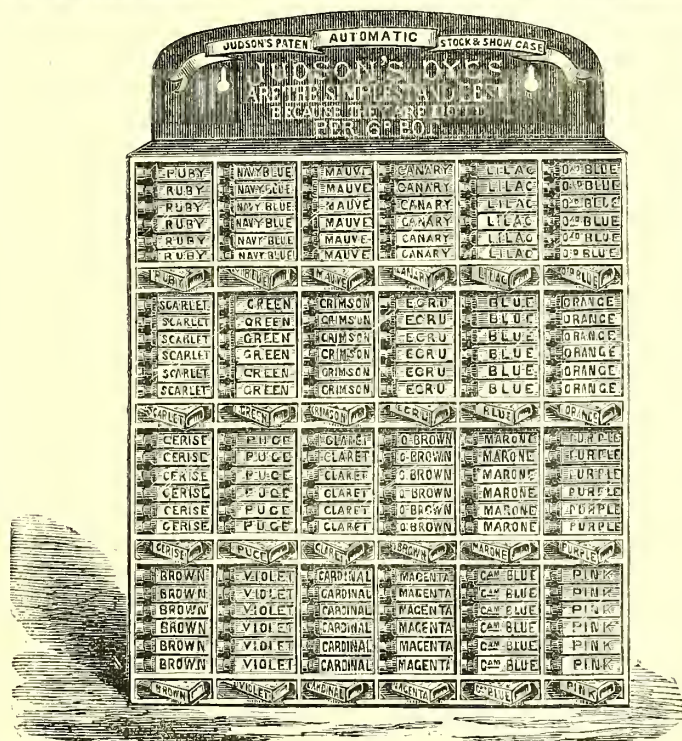
**AGENTS:—**Sutton & Co., 10 Bow Churchyard; W. Edwards & Co., 157 Queen Victoria Street; Newbery & Son, 37 Newgate Street; Evans, Lecher & Evans, Bartholomew Close; Burgoine, Burbidge & Co., 16 Coleman Street; Lynch & Co., 171A Aldersgate Street; Southall Brothers and Barclays, Birmingham; R. Hovenden & Sons, 93 & 95 City Road, Finsbury; Sanger & Son, 150 Oxford Street; Millard & Sons, 40 Charterhouse Square; Corry & Soper, Shad Thames; A. A. Campbell, Leadenhall Street, London; Woolley, Sons & Co., 59 Market Street, Manchester; Apothecaries Company, Virginia St., Glasgow; John Thompson, 33 Hanover Street, Liverpool; Bollean & Co., Bride Street, Dublin; McMaster & Co., 121 & 122 Capel Street, Dublin; Clarke & McMullen, Victoria Street, Belfast; D. Galbraith, Londonderry; M. C. Delacoe, Pharmacie Anglaise, Bruxelles. And by all Chemists, in Pots, 1/6, 2/9, 5/9, and 16/.

**COLONIAL AGENTS:—**MELBOURNE and WELLINGTON: Felton, Grimwade & Co.; SYDNEY, BRISBANE, and LAUNCESTON: Elliott Bros. & Co.; DUNKIN and AUCKLAND: Kempthorne, Prosser & Co.; CALCUTTA: Smith, 341st Street & Co.

**W. H. JAMES, Sole Manufacturer, STAMFORD, FARRINGDON, BERKS.**  
Advertised in "Bell's Life" 56 years. Beware of Spurious imitations.



# THE LATEST INVENTION



## THE NEW PATENT SHOW CASE,

SHOWN IN THE ABOVE DRAWING,

Is made to hold 7 Bottles of each of the 24  
Leading Colours of

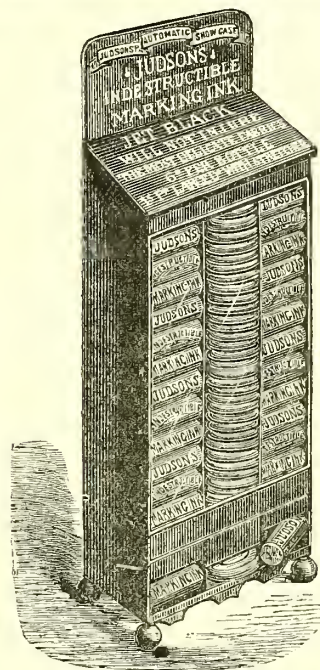
### "JUDSON'S DYES."

CASE WITH CONTENTS COMPLETE,

## 48/- (subject).

This is the most attractive and convenient Show Case ever offered to  
the Trade; may be hung up, or will stand on counter.

The Bottles are so arranged that when one is removed another  
immediately takes its place.



## AUTOMATIC SHOW CASE,

TO CONTAIN  
3 dozen 6d. and 3 dozen 1s.  
OF

### JUDSON'S "INDESTRUCTIBLE" MARKING INK.

PRICE COMPLETE WITH CONTENTS,

## 36/- (subject).

To stand on counter, or may be hung on wall.

Wherever these Cases are shown the sale is very  
large, and this Marking Ink, which is an entirely  
new invention, is the only Marking Ink  
ever invented that is absolutely indelible.

# DANIEL JUDSON & SON, L<sup>IM</sup>.

77 SOUTHWARK STREET, LONDON, S.E.

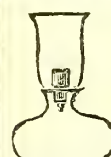


**DR. G. H. JONES, F.R.S.L., &c.,****SURGEON-DENTIST,****57 GREAT RUSSELL STREET, LONDON**  
(Facing British Museum entrance).Will forward his New 64-page Pamphlet, entitled "PAINLESS AND PERFECT DENTISTRY," which contains a List of the Diplomas, Gold and Silver Medals, and other Awards obtained at the Great International Exhibitions, to any part of the world, gratis and post free. *Agents Wanted.***FRED<sup>K</sup> FINK & CO.,****10 & 11 MINCING LANE, LONDON, E.C.****SPECIALITIES: Glycerine—Gum Arabic—Gum Tragacanth—Pure Beeswax—Honey—Vanilloes.****E. BRAMWELL & SON, ST. HELENS, LANCASHIRE.****EPSOM SALTS (PURE).  
CREAM CAUSTIC SODA.  
SULPHITE OF SODA**

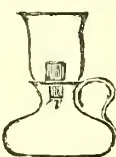
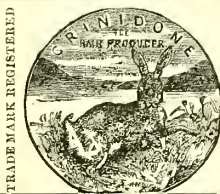
(PHOTOGRAPHIC AND COMMERCIAL).

**GLAUBER SALTS.****PREPARED SILVERY WHITE GUTTA PERCHA ENAMEL  
FOR STOPPING DECAYED TEETH.****P. A. STEVENS,**

(LATE OF HOXTON, N.)

**72 MANSFIELD ROAD  
HAVERSTOCK HILL, N.W.,****SOLE PROPRIETOR AND MAKER OF THE**REGISTERED—NO. 3745.  
P. A. S. can supply the above to Wholesale Houses in Sheet or Sticks, in any quantity, with their name stamped upon each piece. Price List & samples sent Post Free.**SPECIAL  
PRICE LIST  
ON  
APPLICATION.****BOTTLES, VIALS,  
AND  
CHEMISTS'  
CHINA WARE.**

\* LISTS FREE.

**M. DAVIS & CO., GLASS BLOWERS, LONDON DOCKS, LONDON, E**

To all those of either sex who have lost or are losing their Hair,

**CAPPER'S  
CRINIDONE,****THE HAIR  
PRODUCER.****WILL PROVE A BOON.**

Thousands of living Testimonials testify to the efficacy of "CRINIDONE." In bottles, 1 each. Wholesale Agents—EVANS, SONS &amp; Co., Liverpool.

Sole Manufacturer—W. B. CAPPER,

21 Oxford Street, C-on-M., MANCHESTER.

**TO LET.****ASSAY FURNACES, &c.  
THE MORGAN CRUCIBLE CO.,***Sole Manufacturers of  
MORGAN'S and SALAMANDER CRUCIBLES,  
BATTERSEA, LONDON, S.W.**All kinds of Crucibles in Plumbago, Clay, &c.,  
Single and in Nests.  
Muffles, Portable Assay and Melting Furnaces, &c.*

Read "Assay Notes" in C. AND D., April 15, 1886.

**PURE PRECIPITATED CHALK.***Cheapest Sellers in the Market.***Chemicals, Drugs, and Oils at lowest market rates.**

APPLY TO

**AUG. LEVERMORE & CO.,**  
**8 LIME STREET, LONDON, E.C.****PETROLEUM  
JELLY,**

EQUAL TO AND CHEAPER THAN VASELINE.

**SANITARY FLUID AND SHEEP DIP,**

THE CHEAPEST AND BEST DISINFECTANT.

**BREASE, PITCH, ASPHALTE, AND ALL PRODUCTS OF TAR AND ROSIN.***Samples and Prices on application.***GRINDLEY & CO., POPLAR, LONDON, E.****E. MEINERTZHAGEN,****9 MINCING LANE, LONDON, E.C.,****Importer of SARSAPARILLA & IPECACUANHA.****ALL DRUGS AND GUMS SORTED AND PACKED.****TYPKE & KING,****110 CANNON STREET, E.C.****Manufactories—MITCHAM & RAINHAM.**

Pure Acids—Valerianic Acid and all Valerianates. Antimony Golden Sulphuret, Antim. Crocus Lump, and Powder. Essences of Pear and Pineapple. Potassium Cyanide. Nitrate of Ammonia, crystal and granulated. Potass. Sulphid. Iron Perchloride, solid and solution. Hypophosphites of Lime, Manganese, Soda, Potash, &amp;c.

**"LA BRILLANTINE"****METALLIC POWDER (REGISTERED)**

Is the best, cheapest, and most effective Powder for cleaning and polishing Metals and Glass (especially Brass). It is used by the Life, Horse, and Dragon Guards, the Fire Brigades, &amp;c., &amp;c. Sold everywhere in 6d. and 1s. Boxes.

**Proprietors: J. F. BAUMGARTNER & CO.,****22 Newman Street, Oxford Street, LONDON, W.****COCA WINE.****Agents Wanted all over England, Scotland, Wales, and the Colonies.****ARMBRECHT, NELSON & CO.,**

Temporary—

**23-DUKE STREET, GROSVENOR SQUARE, LONDON, W.****HARSTON & CO., LEEDS.****GINGER ALE****From PURE JAMAICA GINGER ROOT.****SELTZER, POTASS, LITHIA, SODA WATER, LEMONADE,****FOR HOME OR EXPORT.****ORANGE WINE**

(VIN. AURANT, P.B.)

Specially brewed for Quinine Wine, does not deposit. Is well adapted for Export, as it will keep good in any climate. In casks, 13, 27, 36, 112, 140 gallons; small casks 3s. 9d. per gall., carriage allowed. In wine bottles (not less than 3 doz.), at 8s. per doz., including bottles. Cases extra and returnable.

*Sample six stamps. Special quotations to large buyers.***GEO. DURRANT & CO., Hertford.**



**THEEROLENE SANITARY DISINFECTANT**  
AND  
**FLUID SHEEP DIP.**  
NON-POISONOUS.  
THE BEST AND MOST RELIABLE, AND THEREFORE THE CHEAPEST.  
ANTI-FRICTION GREASE, OILS, PAINTS, TAR, ROSIN, &c.  
PITCH, in Boxes and Casks, from 1 lb. to 4 cwt.  
Prices and samples on application.  
**ELVIN BROTHERS, HULL.**

**LINT.** THE  
**LIVERPOOL PATENT LINT CO.**  
MARK STREET MILLS,  
NETHERFIELD ROAD NORTH,  
**LIVERPOOL.**  
See Advertisement.



**LIQ. HUMULI CO. CONC.,**  
1 to 15 AQUA,  
**FOR TONIC BITTERS**  
(A FACSIMILE).  
Sample and quotation free on receipt of three penny stamps.  
**J. HINTON KENDALL, Chemist, Blyth**

**POWELL & BARSTOW,**  
5 Albion Place, Blackfriars Bridge, London, S.E.,  
Late W. HURLSTONE & CO., Blackfriars Road and Vine Street, S.E.,  
MANUFACTURERS TO THE WHOLESALE TRADE OF  
**ELASTIC GUM SURGICAL INSTRUMENTS.**  
WORKS, LAMBETH. ESTABLISHED 1830.

**A1 in Quality.**  
**A1 in Style and "Get-up."**  
**A1 in Therapeutical results.**  
So be sure to ask for  
**A1 Brand.**

# MENTHOL CONES.

**MENTHOL versus HOT WEATHER.**

A Show-case, fitted with dummies, price 2s., given away with a 6 dozen order.  
Write for further particulars.

**J. G. SHIRLEY, Proprietor, A1 Brand MENTHOL, 30 Paternoster Square, E.C.**

Write to-day for  
**NEW PRICE LIST**  
(sent post free on application).  
This will be found worthy  
the attention of all desirous of increasing their  
trade.



**WHICH IS CHANGED BY HEAT TO A JET BLACK.**  
Put up for Retail Sale in 6d., 1s., 2s., 2s. 6d., and 5s. Bottles.

Also Barber's Concentrated Liquid COCHINEAL, for Colouring Jellies, Custards, &c.  
Put up in 6d. and 1s. Bottles.

MANUFACTURED ONLY BY THE PROPRIETORS—

**G. BARBER & CO., 6 Worcester Drive, Club Moor, LIVERPOOL.**

Can be obtained through any of the Wholesale Firms, or from the Proprietors, G. BARBER & CO., Club Moor, Liverpool.

# ROBERT GIBSON, MEDICATED LOZENGE

MANUFACTURER,

Carlton Works, Erskine Street, Hulme, MANCHESTER, and 1 Australian Avenue, LONDON, E.C.

EXPORTER OF

**LOZENGES, BOILED SUGARS, & JUJUBES TO ALL PARTS OF THE WORLD.**

SEE PAGE ADVERTISEMENT, JANUARY 15, 1885, No. 110.

SOLE AGENTS FOR UNITED STATES—WRIGHT & RICH, NEW YORK.

# BATTLE'S VERMIN KILLER.

{ Mice eat it readily and  
Die on the spot.

Has an immense Sale, and wherever introduced never fails to give satisfaction. Mice appear attracted to it as by magic, eat it readily, tumble over, and die on the spot. Rats usually die in their runs. Parties troubled with Vermin may be cleared at once, either from Stacks, Houses, or Ships.

**TESTIMONIALS.—Thousands might be published.**

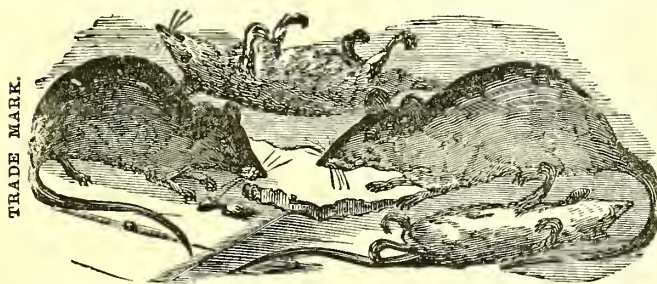
From Mr. THOMAS COLTON, Agent for Selby. A friend of mine purchased a Packet of your VERMIN KILLER last night, doubting its efficacy; to-day he called in to say that he had found fifteen dead mice, and had only used part of a packet. From Mr. EDWARD STURDY, Flemington Mills. I duly received by post the Packet of your VERMIN KILLER, and found it as represented in your advertisement. It speedily destroyed all the mice in my granary. I enclose 2s. for two more Packets. Leeds, November 6th, 1887. I have tried BATTLE'S VERMIN KILLER, and have found it most effectual in clearing my premises of LARGE QUANTITIES OF RATS. THOMAS S. CROSLAND.—Mr. Stend.

Sold in Packets, 3d., 6d., and 1s. each.

SOLE PROPRIETOR:

**Mr. J. R. BATTLE, Chemist, Lincoln, England.**

No Chemist or Storekeeper should be without a supply.

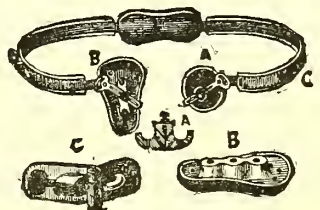
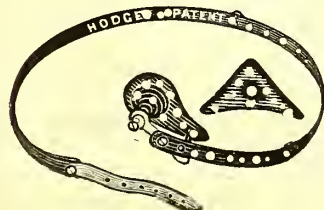


# HODGE'S IMPROVED TRUSS.

The Lancet, in recommending Hodge's Truss, on Oct. 3, says:—"The pad gives an elastic pressure—a very great advantage—enabling it to be worn with great comfort. The truss is light, though strong; possesses such advantages that it is comfortable, adapts itself readily to the movements of the body, and is very effective."

British Medical Journal says (Dec. 19):—"Hodge's Trusses have met with the high approval of surgeons who have had great experience in the treatment of rupture."

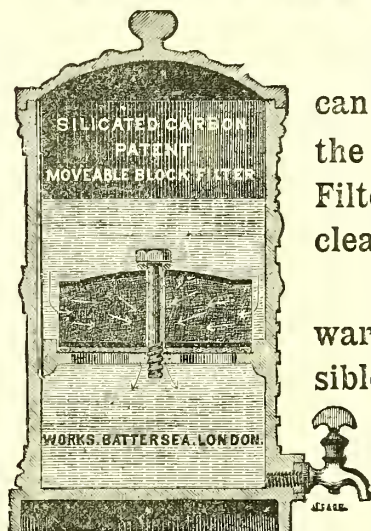
**HODGE & CO., 327 OXFORD STREET, W.**  
FACTORY: 13 JAMES STREET, W.





# SILICATED CARBON PATENT MOVABLE BLOCK FILTERS.

LIBERAL DISCOUNT TO THE TRADE.



(Section.)

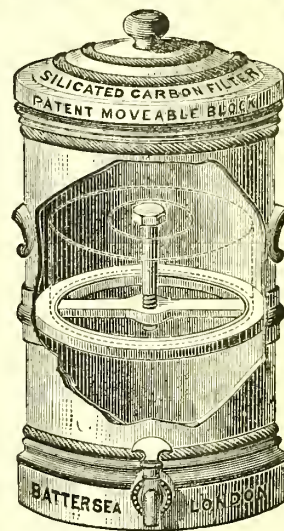
Domestic Filters (as above), in Cream-coloured Stoneware, with Plated Taps and Patent Movable Blocks:—

No. 27. O. $\frac{1}{2}$ gal. 10/6 each.	D. 6 gals. 42/- each.
A. 1 " 14/6 "	E. 8 " 52/- "
B. 2 " 21/- "	F. 12 " 70/- "
C. 4 " 32/- "	

The Silicated Carbon Block can be instantly removed, leaving the whole of the interior of the Filter OPEN for inspection and cleansing.

The working parts are stoneware, and no corrosion is possible.

No loose Pan or inner vessel to cause breakage.



(Elevation with Block removed.)

Dining Room Filters, in Marbled China, with Plated Taps and Patent Movable Blocks:—

No. 22. A. 2 gals. 35/- each
B. 5 " 80/- "

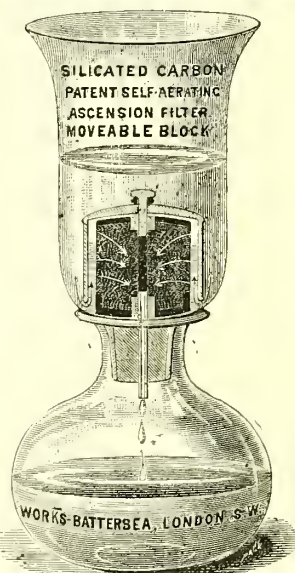
Refrigerative Terra Cotta, do. do.:—

No. 25. 2 gals. 31/6 "
------------------------

LIBERAL DISCOUNT TO THE TRADE.

## THE NEWEST AND MOST EFFICIENT TABLE FILTER.

The water ascends in the direction indicated by the arrows, and each time the top glass is filled the air under the porcelain cover is forced through the Silicated Carbon Block, which is thus automatically aerated.



By simply removing the glass peg the Silicated Carbon Block is at once released for cleansing or renewal.

The Carbon Blocks are efficiently cleansed by boiling, and extra blocks can be supplied with each Filter when desired.

No. 38.

### PLAIN GLASS.

No. O—1 Pint ... .. 2/6 each.
" A—2 " ... .. 4/- "
" B—3 " ... .. 5/6 "

No. 38.

### ENGRAVED GLASS.

No. O—1 Pint ... .. 3/6 each.
" A—2 " ... .. 5/6 "
" B—3 " ... .. 7/6 "

FOR FULL ILLUSTRATED LISTS WRITE TO THE

**SILICATED CARBON FILTER COMPANY,**  
CHURCH ROAD, BATTERSEA, LONDON, S.W.

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ALL CHEMICALS USED IN PHOTOGRAPHY,

DRY PLATES, NEGATIVE VARNISHES, COLLODION, APPARATUS, LENSES,  
ALBUMENISED AND SENSITISED PAPERS,

CAN BE PURCHASED AT WHOLESALE RATES IN THE SMALLEST QUANTITIES FROM

**R. W. THOMAS & CO., 10 PALL MALL, LONDON, S.W.**

Who are prepared to give instruction in the art of Photography FREE OF CHARGE, and every information to Chemists who propose to lay themselves open to do a trade in Photographic Requisites with Amateurs, Professionals, &c.

PRICE LISTS POST FREE.

Complete Sets of Apparatus from £2 2s. to 30 Guineas.

**GEORGE HOUGHTON & SON,  
PHOTOGRAPHIC WAREHOUSE,  
89 High Holborn, LONDON, W.C.**

APPARATUS AND MATERIALS  
OF ALL KINDS.

Porcelain, Glass, and Papier Maché Dishes.

CARD AND VIEW MOUNTS, ETC.

NEW WHOLESALE PRICE LIST for DEALERS ONLY  
POST FREE ON APPLICATION.

**WAX PAPER! WAX PAPER!**

BEST AND STRONGEST MANUFACTURED.

MANUFACTURING CONFECTIONERS,  
BLACKING MAKERS,  
WHOLESALE DRUGGISTS, &c., &c.,  
Supplied with Waxed Paper free from smell and taste,  
cut to any size at the lowest possible price.

**G. C. WALL & CO.,  
115 KENNINGTON PARK ROAD,  
LONDON, S.E.**

**FLY PAPERS! FLY PAPERS!!**

**BLAKE & MACKENZIE'S  
FLY PAPERS**

Are without exception the BEST in the market, and as a means of advertising are unexcelled.

**PRICES.**

*Printed with your own Name and Address and Advertising Matter.*

1,000 2,000 3,000 5,000 10,000  
17/- @ 16/- @ 15/- @ 14/- @ 12/6

**BLAKE & MACKENZIE,  
MEDICAL LABEL PRINTERS,  
School Lane, LIVERPOOL.**

*Chemists' Printing made a Speciality. Write for Samples.*

BEWARE OF THE PARTY OFFERING IMITATIONS OF

**MACNIVEN & CAMERON'S PENS.**

"They come as a boon and a blessing to men,  
The Pickwick, the Owl, and the Waverley Pen."

THE "BIG J" PEN,

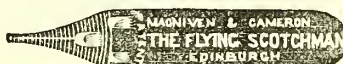


2231 Newspapers recommend them.  
"They are a treasure."—Standard.

SOLD

EVERYWHERE.

THE "FLYING SCOTCHMAN" PEN.



"They eclipse all others."—Globe.

Specimen Box, containing all the kinds, by post, 1s. 1d.

**MACNIVEN & CAMERON,**

Penmakers to Her Majesty's Government Offices,

23 to 33 BLAIR STREET, EDINBURGH. (Estd. 1770.)



# THE MORGAN CRUCIBLE COMPANY

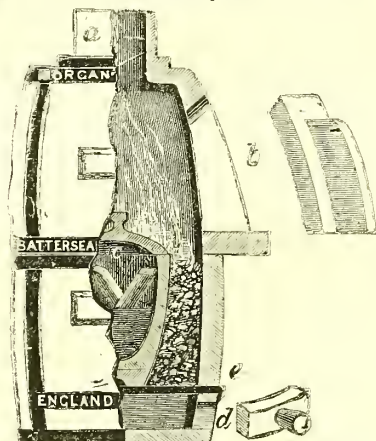
(THE PATENT PLUMBAGO CRUCIBLE COMPANY)  
Sole Manufacturers of MORGAN'S and SALAMANDER CRUCIBLES.

## PORTABLE FURNACES.

IRON BOUND. EXTERIOR DIMENSIONS.

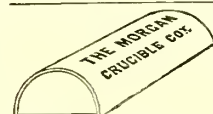
For MELTING GOLD, SILVER, COPPER, &c.

For ASSAYING DENTAL WORK, &c.



a. Socket on which to fix iron chimney, b. Door for fuel, putting in crucibles and for cooling, c. Crucible, d. Door for regulating draft, e. Iron fire-bars.

No.	Diam. in.	Diam. milli.	Height, in.	Hauteur, milli.	For Morgan's Crucible	No. 2	Price £ s. o.
A	9 1/2	235	17 1/2	445	No. 2	1	0 0
B	9 1/2	248	20	503	No. 4	1	5 0
C	11	280	22	559	No. 6	1	10 0
D	13 1/2	349	26	660	No. 8	2	5 0
E	14 1/2	369	28	712	No. 12	3	0 0
F	18	457	32	813	No. 18	4	0 0



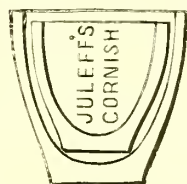
### MUFFLES.

With or without apertures.



No.	Long. in.	Wide. in.	High. in.	Price, per doz.	No.	Long. in.	Wide. in.	High. in.	Price, per doz.
A	7	3 1/2	2 1/2	12	G	11	4	3 1/2	21
B	7 1/2	4 1/2	2 1/2	15	H	10 1/2	5 1/2	3 3/8	25
C	8	4 1/2	3	18	J	12	6	4	33
D	8 1/2	5	3 1/2	21	K	14	8	5	48
E	9	5 1/2	3 3/4	24	L	15	9	6	54
F	10	6	4	27					

Sizes A to F, also K, are suited for the Furnaces of the same letters.  
G to L have one slit at back only.  
Muffles can be made of all shapes and sizes, suitable for Assayers, Enamellers, Dentists, &c.  
H is generally known as United States Mint pattern.



## ASSAY CRUCIBLES.

### FOR COPPER.

CORNISH FORM AND QUALITY (JULEFF).

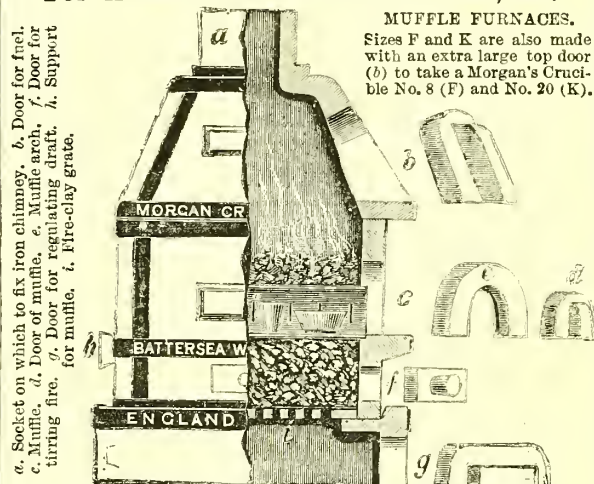
Nest of Two	High, in.	Hauteur, milli.	Diam. in.	Diam. milli.	Price, per doz.
Single..	2 1/2	683	3	077	2/ per doz.
	2 1/2	064	2 1/2	051	2/ per doz.
	2 1/2	051	2 1/2	064	1/ per doz.

All sizes and shapes to order.

### FOR TIN.

High, in.	Hauteur, milli.	Diam. in.	Diam. milli.	Price, per doz.
3 1/2	083	3	077	6/ per doz.

Covers, 2/ per doz.



### MUFFLE FURNACES.

Sizes F and K are also made with an extra large top door (b) to take a Morgan's Crucible No. 8 (F) and No. 20 (K).

Exterior dimensions.		Interior dimensions.		For Battersea Muffles		Price
Width and depth front to back	Largeur et profondeur	Width and depth front to back	Largeur et profondeur			
A .. 12 1/2	318	9 1/2	235	ABCD	£2	0 0
B .. 13 1/2	337	10	254	BCDE	2	5 0
C .. 14 1/2	369	11	280	CDEFH	2	10 0
D .. 15 1/2	394	12	305	DEFGH	3	0 0
E .. 16 1/2	414	12 1/2	324	EFGHJ	3	10 0
F .. 17 1/2	445	13 1/2	350	FGHJ	4	0 0
K .. 23	585	19	483	KL	8	0 0

### ROASTING DISHES.

Diam. in.	Diam. milli.	Per doz.	Diam. in.	Diam. milli.	Per doz.
2 1/2	064	1/3	4	102	1/9
3	077	1/6	5	127	2/

Larger sizes to order.

### SCORIFIERS. (PER GROSS.)

Diam. in.	Diam. milli.	Price.	Diam. in.	Diam. milli.	Price.
1	026	3/	2 1/2	064	5/
1 1/2	032	3/6	2 1/2	070	6/
1 1/2	038	4/	3	077	7/6
2	051	4/6	3 1/2	089	9/
2 1/2	057	4/6	4	102	10/6

### FOR LEAD.

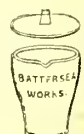
3 in. diam., 077 diam. milli, with Covers, 2/3 per doz.  
Other sizes to order.

### FOR GOLD.

THESE ARE PERFECTLY SMOOTH AND OF THE CORRECT POROSITY.

No.	Diam. in.	Diam. milli.	Height, in.	Hauteur, milli.	Per doz.
A	1 1/2	027	1 1/2	027	2/
B	1 1/2	032	1 1/2	032	2/
C	1 1/2	038	1 1/2	038	2/
D	1 1/2	045	2	051	2/

Covers for either size, 6d. per doz.



THE MINT OF THE UNITED STATES AT SAN FRANCISCO,  
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O. D. MUNSON Assayer.

AACHEN, July 23, 1880.

For several years past I have used Fire Clay Assay Furnaces, Muffles, and Crucibles made by the Patent Plumbago Crucible Co., Battersea Works, London, S.W., and am so thoroughly satisfied with them that I strongly recommend this manufacture to all laboratories, refiners, and smelting works.

(Signed) PROF. DR. DÜRE,

Der Königl. Rheinisch Westfälischen Polytechnischen Hochschule.

NOTICE.—Care should be taken in all instances, when ordering, to specify the Crucibles, &c., manufactured by

THE MORGAN CRUCIBLE CO. (Sole Manufacturers of Morgan's and Salamander Crucibles), Battersea Works, LONDON, S.W.

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Is a Delicious Beverage and Tonic made from Port Wine, Liebig's Extract of Meat and Extract of Malt.

**NUTRITIOUS, STRENGTHENING,  
STIMULATING,**  
*Flesh-forming, and Health-restoring.*

SUITABLE FOR THE ROBUST IN HEALTH  
AS WELL AS THE INVALID.

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M. K. HARGREAVES, Esq., M.D.**

Wellington House, Bruce Street, Leeds.

Messrs. COLEMAN & Co. January 12, 1885.  
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I wish you would send me one dozen bottles, and then will send you money by return. You can send it by rail by G.E.R. on to the G.N.R., and then it will come direct to Leeds.

I am, yours truly,

M. K. HARGREAVES, M.D.

Sold by all Druggists, Wine Merchants, and Patent Medicine Vendors in the United Kingdom, in Bottles, 2s. 9d. and 4s. 6d. each.

Ask for COLEMAN'S LIEBIG'S EXTRACT OF MEAT AND MALT WINE, and "see that you get it."

2/9 size, 30s. per doz. 4/6 size, 50s. per doz.

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Acknowledged to be the only real substitute for eggs yet discovered. Its action on Cakes, Puddings, &c., &c., resembles that of the egg in every particular, enriching them in colour and flavour, rendering them most wholesome and nutritious. One sixpenny tin will go as far as twenty eggs. In 1d. Packets; 6d. and 1s. Tins.

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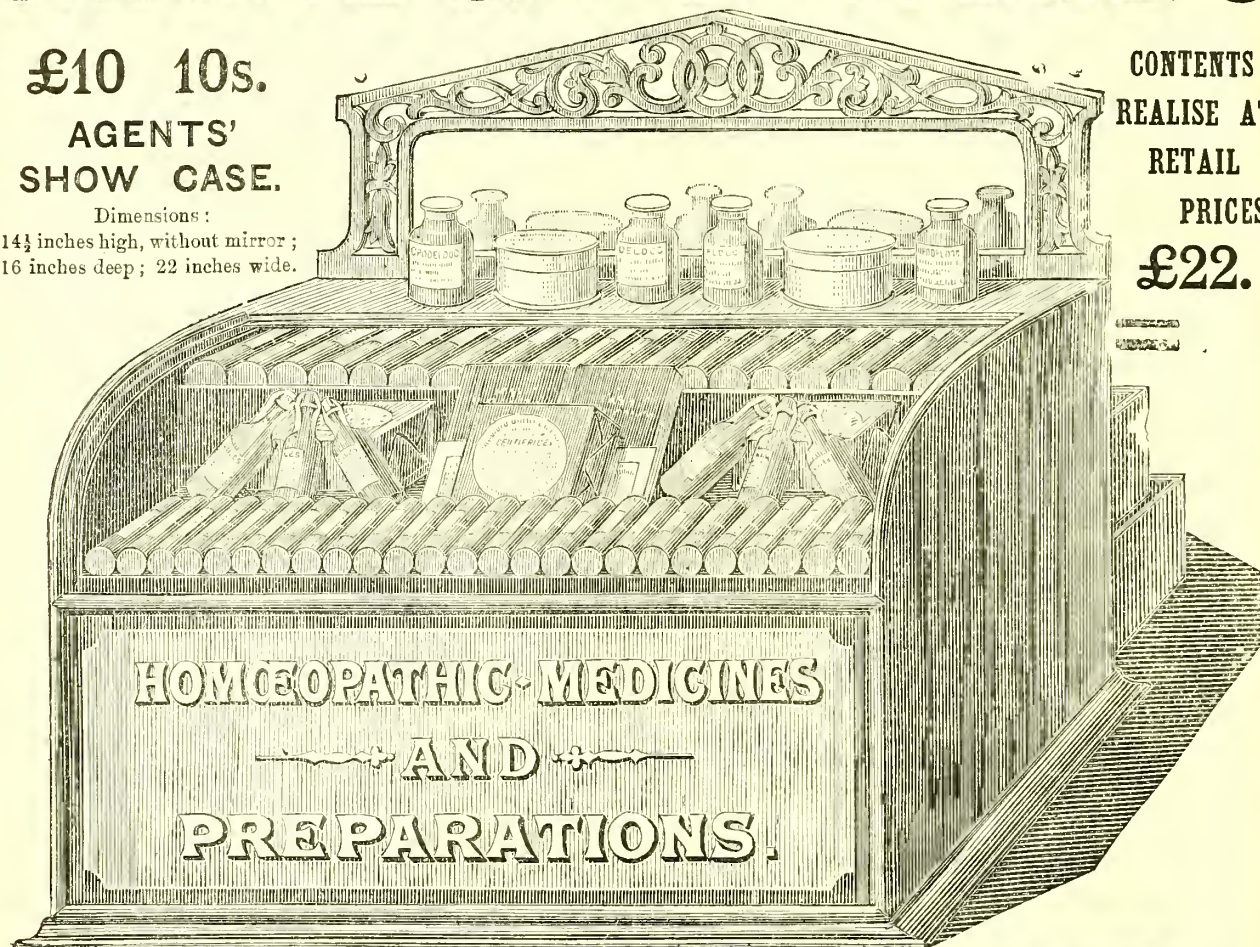
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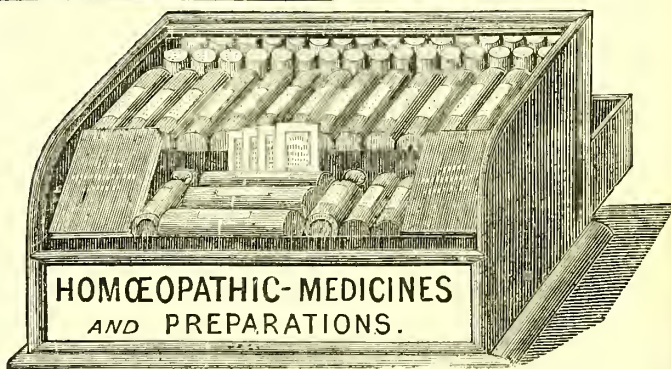


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